XVI.

VOL. II. APRIL, 1849. NO. IV.

# THE WESTERN JOURNAL,

OF

AGRICULTURE, MANUFACTURES, MECHANIC ARTS, INTERNAL IMPROVEMENT, COMMERCE,

AND

# GENERAL LITERATURE.

Agriculture and the Mechanic Arts are the basis of Civilization.

M. TARVER & T. F. RISK,
EDITORS AND PROPRIETORS.

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# THE WESTERN JOURNAL

## OF AGRICULTURE, MANUFACTURES, MECHANIC ARTS, INTERNAL IMPROVEMENTS, COMMERCE, AND GENERAL LITERATURE.

**Publication Office, 23 1-2 Second street, Saint Louis, Missouri.**

THIS work having reached the fourth number of the second volume, the Editors now, for the first time, present the people of the West with a Prospectus. The publication was commenced in January, 1848, without either a Prospectus or Subscribers. Entering upon an untried experiment, and distrustful of their ability, the Editors resolved to place the WESTERN JOURNAL upon its own intrinsic merits, and trust to a discriminating public for patronage upon that ground alone. But having obtained a liberal circulation without resorting to the ordinary methods of introducing works of like nature; and being encouraged by the approval and commendation of many highly intelligent and well-judging individuals, they now feel that they are entitled to claim the patronage of an intelligent community.

In explaining the objects of the WESTERN JOURNAL, we shall speak of what we have already performed, rather than what we design doing in future. The work was designed as an agent in developing the vast resources of the Valley of the Mississippi, and hence it necessarily embraces a variety of Departments. These, we shall notice in the order in which they have been arranged:

### AGRICULTURE.

Considering Agriculture as the foundation of all other pursuits, and indeed as the basis of civilization, it was naturally adopted as the leading department; but owing to the abundance, fertility and cheapness of land in the West, we could not hope to interest the farmers in the ordinary details of their pursuit; and as long as there is a redundancy of production, but little improvement can be expected in the Science of Agriculture. In treating this subject, therefore, we have confined our labors chiefly to the examination of the principles involved in the exchange of Agricultural products for other commodities; for we hold that we should confer a greater benefit upon the people of this region, by showing them where they can find two consumers in the place of one, than to teach them how to produce two blades of grass where but one grew before.

### MANUFACTURES.

Believing that the prosperity and best interest of the farmer, and indeed of every other class in the community, would be promoted by the introduction and encouragement of manufactures in the West, we have given this subject a prominent place in the WESTERN JOURNAL, and have endeavored to show that this is the best, if not the only means, of securing to the agriculturist a permanent and remunerating market for his products.

### MECHANIC ARTS.

In advocating the establishment of manufactures, we necessarily embrace the interests of the Mechanic Arts, for their encouragement and prosperity is intimately involved in the prosperity of Agriculture and Manufactures.

### COMMERCE.

Commerce being the great agent of all other pursuits, it constitutes an important department in the poliiical economy of every nation, and without a correct knowledge of its laws, and of the facts which modify these laws in each particular country, neither the merchant nor producer can calculate the result of their operations with any reasonable degree of certainty. We have, therefore, not only collected a large mass of statistics in the various branches of commerce, but we have examined, at considerable length, the natural laws which govern trade, and the exchange of commodities as respects both individuals and nations.

### INTERNAL IMPROVEMENTS.

The advantages which a well organised system of Internal Improvement affords to a community are so important, that it may be affirmed that no country can prosper in the present age without improving its natural facilities of transportation; and hence we have given to this subject a separate department, and have used our best exertions to bring it fully before the people of the West.

### GENERAL LITERATURE.

This department was designed to embrace original essays on literary subjects, but topics involving the immediate interest of the country, have so constantly presented themselves for consideration, that this department has not received that attention which we designed to bestow upon it at the commencement, but we trust that in future, we shall be able to make it more interesting to the general reader.

Appreciating the great truth that the interest of any one pursuit must ultimately depend upon the prosperity of all others, we do not conceive how we could promote the interest of agriculture, manufactures or commerce, without embracing the mechanic arts, internal improvements, and other kindred subjects; and hence it has [illegible]

Appreciating the great truth that the interest of any one pursuit must ultimately depend upon the prosperity of all others, we do not conceive how we could promote the interest of agriculture, manufactures or commerce, without embracing the mechanic arts, internal improvements, and other kindred subjects; and hence it has been our principal aim to illustrate these dependencies, and trace the connecting links which bind together all useful pursuits, callings and professions; for concert in action and social harmony, cannot be established until these dependencies and connections are comprehended and properly appreciated.

And hence we undertook the arduous duty of writing an Essay, as the leading article for each number. In these we have appended a variety of subjects connected with the great interests of the West, upon what we esteem the true principles of political economy, irrespective of party politics. We have also seized upon every occasion, to make a moral application of our subjects, and have continually kept in view the elevation of the moral standard of the community.

The design of the WESTERN JOURNAL was formed with reference to the peculiar condition and wants of the West, and is more comprehensive than that of any other periodical with which we are acquainted, either in this or any other country. In what degree our labors have corresponded with the design, must be left to the judgment of others; but if useful matter and a high moral tone be considered as tests of excellence, we fearlessly challenge comparison with any periodical of the age. Conscious of having discharged our duties as Editors, and being resolved to use every exertion to make our labors useful to the country, it remains for the people of the West to determine whether they will sustain us in our efforts to promote their best interests, or whether they will still continue to support eastern publishers, who look chiefly to the interest of their own district of country, and grow rich by selling their works to the people of the West against whose interest they are continually laboring.

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**M. TARVER & T. F. RISK, Proprietors.**

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THE

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M. TARVER and T. F. RISK, Editors and Proprietors.

VOL. II. APRIL, 1849. NO. IV.

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THE

# WESTERN JOURNAL.

VOL. II. APRIL, 1849. NO. IV.

## ART. I.—WESTERN POLICY.

In all his actions, man may be regarded as proceeding on the principle of equivalents, for it is not in conformity to the economy of his nature, to live and labor without a reward; but, as a rational being, his conception and appreciation of some definite object must precede a desire for its attainment, and his exertions depend mainly upon the vividness of his conceptions, and the estimate which he places upon the attainment of the object which he has in view. With no definite attainable object in view, there can be no motives to action, except such as spring from natural instincts; and one that does not fix his mind upon the accomplishment of a certain end, is driven, by necessity, to place himself under the direction and control of others; and, although he can scarcely fail in meeting with those who, having objects of their own to accomplish, willingly undertake to direct his actions and pursuits, yet it rarely happens that this office of apparent benevolence is assumed for other than selfish purposes. It is owing to the want of some ideal object, sufficiently appreciated to excite a desire for its attainment, and well devised plans of operation, that so many individuals, in every community, become hewers of wood, and bearers of burthens for their fellow-men. Physical strength, high mental endowments, education, and even moral qualities, are of little use to the possessor, unless he resolves upon the attainment of some rational object, calculated, in its nature, to call his faculties into useful employment; and the same may likewise be predicated of communities or States. To constitute one a good citizen of a free government, he must keep in view the attainment of social or national, as well as individual, objects; for the individuals of which a community is constituted may be intelligent and enterprising; each may have selected objects worthy of pursuit; and, by plans well devised and honorable, may accomplish ends highly important to their respective interests; yet, unless there be a social or national object desired alike by all, or at least by a majority, no progress can be made, and nothing gained, to the cause of civilization. A nation, composed of individuals acting each for himself, without reference to the common welfare, could not long exist; or, if it should continue to retain the form of an organized community, it would possess no power to

protect itself against the encroachment of its more politic neighbors, and would suffer the same fate as does the individual who, living without an object, falls into the hands of others, and submits himself to their guidance.

These may be regarded as axioms in individual and political economy; but, like some of the familiar truths of morals and religion, they are but indifferently observed by a large part of the people of the west. The population of this region may be regarded as not less intelligent and enterprising than that of other portions of the Union; and we rarely meet with an individual who is not actively engaged in the pursuit of some definite object; but, unhappily, these objects are too generally selected and pursued with reference to individual interests merely. Social and national objects, if such ever existed, are obscured and lost to the view, and we have neither a State nor a National policy. The offices of the State and general government are sought with as little reference to the public welfare, as though they were situations in a counting house or manufacturing establishment; a canvass for office is a personal matter—and legislation naturally proceeds upon the same principle. In the long list of acts which are promulgated at the close of a legislative session, few are of sufficient universality to embrace the entire territory of the State; the whole volume of enactments, if well considered, will be found to bear unquestionable evidence of a tendency to the disintegration and division of the social entity. If a county desires peculiar laws and privileges, they are readily granted; and, if individuals ask exemption from the duties and observances required of the citizens at large, the legislature kindly considers the memorial, and if the prayer of the petitioner should not conflict with the individual interest of the members, they grant his request, even though he should desire to be relieved from the bonds of matrimony, and the duties of a husband and a parent.

The functions of government being thus appropriated to individual purposes, the social power loses its vitality, and ceases to subserve the purposes of its institution; and aptly considering it as defunct, a few individuals claiming as next of kin, demand a distribution of all the assets among themselves, while others, whose pedigrees are not quite so clear, contend for an equal division, "share and share alike." The same principle of individual appropriation is evinced in the conduct of the western representation in the national legislature. In the west, adhesion to certain parties stands in the place of measures; and hence, the merit of a representative is determined by the amount of service which he is capable of performing as a partizan, and having no measures of his own to support, like a soldier of fortune, he enlists under the banners of foreign belligerents. The people of the States bordering on the Atlantic perceive and understand this peculiar state of things in the west, and shape their policy with reference to the advantages which they hope to derive from it. We hear much of northern and southern measures, and the people of the west espouse the one or the other with as much zeal as though they involved the existence of their liberties; but who, for many years past, has heard of a western measure, unless the movement made in favor of freeing the western waters of snags and sandbars, may be so considered; and

even in respect to this, the west was far from being united, and the measure was made to yield, at least for a time, to party purposes.

Who so blind as not to perceive that one great object of the northern and southern parties is to propagate and extend their local and sectional prejudices across the Allegheny mountains, and thus divide the Mississippi Valley between them? a design in which they have already succeeded most effectually. What a humiliating spectacle do the people of the Valley of the Mississippi present to the world, excited and divided as they are upon issues made up between the north and the south, while their own great interests are abandoned to the control and direction of the one or the other, as either may chance to gain the ascendancy. Had the natural instincts of the western people not been stultified and mislead by prejudice, and the force of party discipline, they would never have been caught in so vile a snare.

We deprecate all parties formed upon local interests or sectional prejudices, and regard them as dangerous to the peace, if not to the safety of the Union; and hence, we have no inclination to excite prejudices in the west against any other section of our common country. But it is our most ardent desire that the people of this region should escape from the unhappy condition of being divided into northern and southern parties. This valley constitutes a well defined geographical division of the continent, more abundant in all the elements of national wealth and national greatness, than any other part of the globe of equal extent; but as great as it is in all its proportions, it is not susceptible of division—for, like the human body, all its members and appurtenances but constitute a unit, and the preservation of each particular part is necessary to the full and perfect enjoyment of the benefits which nature designed to bestow upon all. From the uttermost fountains of the east, north, and west, where the waters of the mighty Mississippi first meet the light, to the Gulf, where they mingle with the Ocean, was designed by the Creator as the home of one people—governed by the same laws—homogeneous in religion and philosophy—ordained, as we believe, for the great purpose of propagating and impressing upon the inhabitants of other regions the principles of a better civilization. Then who shall draw a line across the father of waters, and sever this great valley into northern and southern divisions—raise a barrier between the sympathies of those who happen to reside on either side, and disappoint us in the attainment of the glorious destiny which awaits us? This no human power can effect: but, if we incautiously permit others to originate our measures, and to beguile us into issues of no practical importance, and which in nowise affect our own interest, except that they serve to subject us more and more to their control, then this, and perhaps many generations, will pass away without realizing any of those pre-eminent advantages which naturally belong to our position.

Instead of engaging in the canvass of northern and southern questions, let us look around us for social and national objects, worthy of our highest exertions; these abound whithersoever we turn our vision; and we have only to choose between those which promise the largest benefits, and which are most easily attained. Let us reclaim the social functions that have been so long appropriated to individual purposes,

and having resuscitated the social compact, direct its action to its legitimate purposes; and, if we act wisely, and are true to ourselves, we shall find means sufficient for the accomplishment of every well chosen end.

We have been so long accustomed to look to the east for opinions, literature, arts, manufactures and capital, that we seem to have but little confidence in our own capacity, and even distrust the obvious advantages which surround us. The opinion which we entertain of ourselves, and of the resources of the country, or, of our probable success in any particular pursuit, are generally received from the east. Do we contemplate the encouragement of certain manufactures, we consult an eastern manufacturer who has no means of appreciating either the advantages or disadvantages of the location, and honestly believing, no doubt, that no country can rival New England in this respect, and not perceiving how he is to be benefitted by encouraging manufactures in the west, he is too cautious, and perhaps conscientious, to advise us to enter upon so hazardous an enterprise. He has long contemplated all the difficulties that attend the introduction of manufactures in a newly settled country, and he is able to enumerate them like a well conned lesson, for he counts upon these difficulties as a protection to his own business, and he would almost as soon abate an article in his creed as to admit that any of these difficulties did not exist in full force. We are told that ours is an agricultural, and that New England is a manufacturing country; that the habits of our population are formed to rural pursuits, and that they will not make efficient and reliable operatives in manufacturing establishments; and withal, that they neither possess sufficient industry, nor strength to endure constant labor; and these, and like assumptions are taken for granted by western men, and we hear them frequently repeated as established and incontrovertible facts. And in like manner our opinions in regard to every pursuit in this country, are more or less influenced by the opinions of eastern men.

In respect to the subject of literature, our condition is still more humiliating; for, if we except party politics, newspaper notices of legal and moral offences, paragraphs of personal abuse, and kindred subjects, a writer in the west would meet with little less patronage among the Camanches of the plains, than among his own countrymen. They appear to be totally incapable of comprehending how it can be that an individual residing in the same country should know anything that is not familiar to themselves; they are liberal patrons, however, of eastern literature, including "John Donkey," and all, up to the most fashionable and highly embellished monthly; and even the prudent and otherwise well-judging farmer, sends to New England for an agricultural paper, to learn him how to grow corn, tobacco, and hemp in Missouri; while he would almost suspect that one was attempting to get his money by false pretences if he were applied to for the purpose of soliciting his patronage to an agricultural paper to be published in the west.

As long as men, women and children confine their reading exclusively to eastern literature, and totally neglect their own, their tastes and habits of thinking can never conform to the condition of things

around them; and instead of sympathising with the institutions under which they live, their sympathies are with those at a great distance, whose principal aim is to monopolize the profits of western labor.

Nor do the arts and manufactures receive much better encouragement. If, however, the manufacturer should be so fortunate as to possess the means of proceeding with his business without the assistance of the community, and should be satisfied to live without its sympathy, and can afford to sell his wares for decidedly less than articles of like nature can be purchased of the merchant, he may go on and prosper; otherwise he would have little to hope for, laboring as he must, agains the prejudice in favor of eastern manufactures.

Having treated this subject with some degree of freedom, we are unwilling to leave our readers under the impression that we are so uncharitable as not to perceive, and acknowledge, that the grievances of which we complain are occasioned by the peculiar circumstances connected with the settlement of the west, rather than by a lack of intelligence or of an ordinary degree of social virtue on the part of emigrants to this region. Individuals come to the west mainly with a view of improving their pecuniary condition. Strangers in the land, and unacquainted with the policy and public men of the State, they take little interest in public measures, confiding everything of a social nature to the direction of those who have preceded them; thus circumstanced, it is natural that they should cherish their sympathies for the institutions under which they were raised, and feel a lively interest in all questions of public policy, that are calculated to affect the kindred and friends whom they have left; and hence the people of the west are generally found ready to espouse the policy and the cause of their native country, without stopping to inquire how far such policy comports with the interest of their adopted State; nor is it less natural that the parent State should look to her children for countenance and support, notwithstanding their removal to distant lands. All this is in accordance with the economy of man's nature; and we revere the source whence these sympathies flow, but we cannot commend the course of one who habitually supports the policy of his native State, without reference to the true interest of the State of his adoption. Having taken protection under its laws, and claiming all the privileges and immunities of a citizen, it is among his highest duties to study the common interest, and identify his own with the welfare of those among whom he lives.

The selfish course pursued by western politicians may, likewise, be traced to the same cause, for they, in common with others, come to the country for the purpose of improving their condition; and they seek office not because they possess more public spirit than their neighbors, but as the means of obtaining their individual objects. With such views, it would be unreasonable to expect that they could attend to their own interest, and that of the State also; especially if one should happen to conflict with the other.

We have pursued this subject beyond our original design. We set out with the purpose of suggesting to our readers, some object of more importance, in a social and national point of view, than the unprofitable issues now before the country, some of which are calculated

to produce no other fruit than evil, either in their discussion or decision; and, therefore, we desire to relieve the country from this absurd dilemma, by proposing an object more worthy of its consideration.

Congress having adjourned without acting finally upon Mr. Benton's great railway measure, time is afforded for a thorough discussion of its merits; and we hold it to be the duty of all who desire its consummation, to aid in bringing the subject fairly before the people of every part of the Union. To this end, we suggest that State Conventions be called, for the purpose of appointing delegates to a National Convention, to be held at some suitable and convenient place in the Atlantic States. The measure, though strictly national, is more likely to receive the sanction of the western than of the eastern States; and, therefore, with a view to calling out a full representation from the latter, it is advisable to make the place of meeting as convenient to them as practicable. It is not to be expected that Congress will adopt a measure of such vast importance, and one involving the expenditure of so large an amount of public money, without a general expression of public opinion in its favor. Missouri is more immediately interested in this great work than any other State; and it is the duty of her citizens to take the initiatory step towards bringing it fairly and fully before the next Congress.

The moral effect which a work of such magnitude is calculated to produce on the people of this country, will be not less important than all its other advantages combined; for there is, perhaps, nothing that tends so much to nationalize a people as great public works; their grandeur impresses itself upon the minds of the most selfish, as well as the humblest individual—socializing the thoughts and actions of the one, and elevating the other in his own estimation; each experience a pleasure which they are conscious cannot be appropriated to themselves alone, and are compelled by the laws of their nature to sympathise with the entire community; and the barriers which selfishness erects for its protection being broken down, and the individual having tasted of the inspiring fountain of social enjoyment, feels his heart and affections enlarged, and his nature dignified. His social nature thus invigorated and sustained, he perceives a glow of patriotism, perhaps for the first time, diffusing itself through his heart, and he rejoices in the discovery that there are other and higher sources of enjoyment than the pursuit or attainment of individual objects.

Some of the States of this Union have projected and accomplished works of considerable magnitude, and of great utility, not only to themselves, but to the nation at large, and of these their people are justly proud; but these achievements do not challenge the sympathies of other States, who neither assisted in devising the plan, nor contributed aught to the accomplishment of the work. For where there is no community of assent, concert in action, nor common interest, there can be no sympathy; and, indeed, the accomplishment of great works in one State, may, instead of sympathy, excite the envy and jealousy of others.

The genius of the age and the peculiar character of our institutions, demand a great national enterprise—one grand in conception, useful in its purposes, and in all respects entirely national. Such is the

scheme of a railway spanning the American continent, and opening a direct communication between Europe and Asia. Such an enterprise cannot fail to inspire every American heart with a national pride, and national sympathy; and, elevating the mind above the sectional partyism and local prejudices which have so much disturbed the national repose, it will strengthen the bonds of union; perpetuate the principles of compromise upon which it is based, and present us as a bright example worthy to be imitated by all the nations of the earth.

## ART. II.—EDUCATION.—NO. III.

BY JOSEPH ORMROD, ESQ.

### THE INTELLECTUAL DISCIPLINE OF SCHOOLS.

The errors and bad effects of the old system of School Discipline considered.

THE subject of education is one of a nature so comprehensive, and which occupies so wide a field of enquiry, that on an occasion like the present, when writing for a periodical journal, I am under the necessity of studying brevity, and of expressing myself in terms as concise as may be in order that no important consideration may be omitted, and that I may be enabled to compress as much as possible of what relates to the subject, within limits necessarily restricted. Yet with the eager desire which I feel to accomplish something, however little, my disquisitions will, no doubt, be regarded as sufficiently ample. It is my wish to make such an exposition of my subject as may serve, in some degree at least, to awaken for it a deeper interest in the breasts of all true lovers of their species who may see these pages—to convince them of the insufficiency of our present modes of instruction, and stimulating them to aid in procuring the introduction of a better system

I would give my readers something more tangible to lay hold of, and tending more to the advancement of the cause, than is generally to be met with in the mere declamatory harangues which are so frequently indulged in when education is the topic,—for assuredly there is no subject on which so vast a quantity of breath and ink has been expended and apparently to so little purpose.

I wish not only to win the assent of my readers to the views and doctrines which I advance, but so to represent the importance and manifold advantages of a good education that they may know and feel them. This I would do if I could—if I fail, it will be from inability, and not for want of the will and endeavor to make the desired impression.

If I can in any degree succeed in my object of exposing the defects of the present system, and of exciting active attention to the adoption of a better it will be, as I apprehend, in the way I have begun, by reverting to first principles, and laying the ground work for improved methods. It is by this means only that the particular modes of discipline which I shall occasionally indicate, can be rightly appreciated, and the reason and object for which their adoption is recommended be sufficiently comprehended. An acquaintance with principles in relation to this, as to almost all other subjects, I regard as of primary importance.

Details are comparatively of insignificant value, for if we are well grounded in the former, the latter will readily present themselves. They will follow almost as a matter of course.

It is, indeed, impossible to retain in the mind a multiplicity of details, or even fully to understand their application, unless they are connected with a principle. Hence it is that, with such convictions as these, I dwell so much upon principles—upon generals, before I can, consistently with the views I entertain, approach particulars, and before I advert directly to the special means to be employed for training the youthful mind and securing an efficient school discipline.

I shall, therefore, continue to discuss the subject in the manner I have begun, and chiefly concern myself with principles, leaving their application to those who may think proper to adopt them.

Considering that the general absence of correct views and guiding principles, among parents and others, regarding what sort of discipline should prevail in the school room, has been the principle retarding cause in the advancement of education, it will be my aim, so far as I can, to disseminate that species of knowledge. For lack of this the difficulties of the teacher have often been greatly increased and multiplied; difficulties which in themselves are sufficiently formidable, even with all the sympathy and encouragement that are his due, could he always obtain them. He is dependent upon the parents or their appointed trustees for a support, and desirous therefore, of rendering his services acceptable to them ; he will in consequence rarely venture to adopt any rule or regulation in his school, or pursue any mode of discipline, which is likely to meet with their decided disapprobation. It is, indeed, true that the teacher himself is but too little competent, in many cases, to the proper discharge of his duties, but he requires at all times the needful countenance and support of parents and guardians, without which he can but imperfectly execute his trust, or carry out into successful operation any system of school discipline, however well qualified he may be for the task. These observations, however, are but collateral ; I must apply myself more directly to my subject. Having in the foregoing pages, taken a brief survey of the ground we should occupy in building up a system for the right education of youth, and well considered the objects which it behooves us to keep steadily in mind, my efforts will now be more particularly directed to the enquiry which regards the means to be adopted for the most effectual accomplishment of those objects. It will be unnecessary for me to enlarge upon the observations already made in relation to *physical development*—a condition in the education of youth which cannot

safely be disregarded. They comprehend as much, perhaps, as can be advantageously said on the subject; unless, indeed I were to undertake to instruct my readers in all that relates to the laws which regulate and govern our physical nature. This, were I equal to the task, would greatly transcend the limits to which I am unavoidably restricted; nor could such an exposition be regarded as properly belonging to the subject; although it is true that an intimate acquaintance with those laws would alone suffice for forcibly impressing upon the minds of all, the importance of their due observance.

It remains for me then to discuss the means best adapted to the full and perfect development of our intellectual and moral natures.

Although it is indispensable in actual training, that these two powers should be equally and simultaneously exercised, I shall find it more convenient to consider it separately; by which means I shall be enabled to do a fuller justice to both. I will first discuss the principles which relate to the intellectual discipline of schools, reserving what I have to say on the subject of moral training, for future pages, as being of too important a nature to be brought in as merely an adjunct on the present occasion. Were I, indeed, to attempt treating of both conjointly, I should certainly fail in doing justice to either.

We may now enquire in what intellectual discipline properly consists, or what are the methods best adapted to act upon the juvenile mind so as most effectually to promote that species of discipline, and give the desired exercise to the faculties. Whether the teacher will succeed best by a resort to the customary means of merely tasking the memory of his pupil with a large amount of knowledge formally arranged, and thus *communicated* to a passive recipient, all the while relentlessly cramming his mind with the thoughts of other men; or, whether he will not accomplish the object better—so far at least as children are concerned—by disregarding systematized knowledge altogether, and applying himself directly to the faculties, by seeking to stimulate them into activity by any means that may suggest themselves to him on the instant, making use of any familiar object for the purpose, and directing their attention to things and their properties as well as to words? It is not in my estimation the amount of acquirements that we should be solicitious about, but rather the amount of thought which can be called up and brought into exercise, with but little or any regard, in the first instance, to what is usually called knowledge, whether little or much be obtained of that species commonly taught in schools.

If we rightly comprehend the nature of mind, our chief aim will be not so much to impart knowledge, so called, as to prepare the mind for its reception. This can only be done by the incitements of curiosity, in regard to such matters as the child can take an interest in; which are likely to excite enquiry in his mind, and engage his attention in such a manner as to make him in love with his studies. Acquirements in literature and science, instead of being regarded as a *means* only, are too commonly looked upon as the sole *end* and aim of all our endeavors to educate.

This is a great mistake, and one which leads to the neglect of the more important consideration of a thorough discipline for the understanding.

The ultimate objects at all times to be kept in view, are those of cultivating the faculties by exciting thought; of purifying the heart, and refining the mind of the pupil. If the intellectual attainments of our children are to be independent of these objects, then, indeed, has education been pursued without profit, and without yielding those results which good instruction is capable of producing. "Why do we wish our children to be wise and clever?" remarks a writer of the day. "Is it not because we feel that, in proportion as they exercise the faculties of thought and reason, so will their sphere of usefulness be enlarged—so will those habits and feelings be excited, which tend to happiness and virtue." If the faculties of children have been sufficiently exercised, knowledge will be easily obtained; it will, indeed, be sought after voluntarily by the pupil himself, and that which he acquires will not merely rest upon his memory, but become a part of his ordinary associations. The mind of the pupil, it is true, must have materials on which to act; he must be supplied with a multiplicity of ideas, to furnish reflection and give exercise to his understanding.

He must be informed of actualities—of what exists—and be made to comprehend cause and effect in relation to many things with which he is familiar; and, when his understanding is thus exercised, it signifies but little what may be the kind of knowledge employed for the purpose.

With these views, and for the benefit of those who have not reflected on the subject, or reflected but little, it will be expedient for me, before proceeding further with my strictures on what relates directly to mental discipline, to make some passing observations which have for their object the nature and constitution of the human mind. It will not, I presume, be questioned that before we begin our operations we ought well to consider the properties and capabilities of that which we operate upon; namely, the mind of the child which is entrusted to our guidance and direction, and which we have to mould and form to our purpose. In our physical operations, when acting upon matter, we conceive it necessary that we should inform ourselves respecting the properties of the particular substance which we are seeking to change or modify. We do not apply acids to polished steel, to preserve it from rust; nor seek to give lustre to our furniture, by rubbing it with brickdust. The artisan, working in metals, must make himself acquainted with their several properties, and the effects produced upon them by heat, or he will not succeed in shaping and tempering them to his purpose; and the agriculturist must know the qualities of his soil, before he can cultivate it to advantage.

A knowledge of the nature and properties of mind, in all who concern themselves with education, is no less necessary, in order to produce upon it the desired effects. "If you attempt to act upon the mind," says a distinguished writer, "in a way not adapted to its nature, the least evil you incur is to lose your labor."*

I can, perhaps, best explain and illustrate what I would say in relation to the properties of mind, so far as development is concerned, by

* James Mill.

a reference to what takes place in regard to the members and organs of the body, when vigorously exercised; or, on the contrary, when comparatively unemployed, and with their several functions in a state of torpor.

There is a close analogy existing between the bodily and mental constitution; they are equally invigorated, and their powers increased by use and exercise; and without these necessary conditions, neither the one nor the other can be maintained in a sound and efficient state. If unused, or used but little, they alike languish; and, were this unnatural state of activity to be continued, they would, in time, not only lose the power of performing their several functions, but perish, ere long, with the entire man. The organs of sense are highly susceptible of improvement in the increased power of discrimination which they gain by a diligent and constant use, particularly when the mind is much and habitually interested in the exercise of their functions; as is the case when any particular avocation or pursuit in life, makes large demands upon their powers, and renders a nice discrimination essential to success. This may be exemplified in a variety of instances.

The practiced eye of the hunter will see game, and strike it with unerring aim, when the eye of another, in search of the same objects, will wander over space without making any such discovery. The eye of the latter has not been trained to vigilance and accuracy in the same pursuit. The Indian will trace, for miles, the footsteps of a savage foe, where the civilized man, unaccustomed to the wilderness, is unable to detect the slightest indications.

The mariner will decry a distant object at sea—land, or a sail far away on the horizon—long before the eyes of the landsman can distinguish anything but a waste of waters, and the wide-spread canopy of Heaven. The artist, even of mediocre powers, will discern hues and tints, and lines and forms, of exquisite beauty, which to another are imperceptible, and but little apprehended when pointed out.

And so it is with regard to the other senses. We all know the great difference between a cultivated and an uncultivated ear, as relates to music and sounds generally. We know the niceness of discrimination often acquired by the organs of smell, when habitually and carefully exercised upon different odors; and we are equally familiar with the fastidious tastes of the *epicure*, whose every thought has been ignobly given to the gratification of his palate. The discriminating powers of the tactual organs, also, are capable of being improved to as great a degree as those of the organs above mentioned. These consist of the finer nerves, which are distributed over the entire body, but more particularly in the ends of the fingers. We may learn to how great a degree they may be improved, by a careful and anxious use, from what we witness of their greater perfection in all those who have the misfortune to be blind. Deprived of one sense, they are under the necessity, in some degree, of compensating the loss by making increased demands upon another.

The organs of sense, exercised and improved as above described, are thus exercised under the stimulus of the desires which actuate their owners, and for the accomplishment of objects to be attained only

by means of the senses. It will not be disputed that the mind partakes, in some degree, of the benefit, and shares with the organs in the additional powers thus acquired; the faculty of attention is brought into exercise and increased; but it is little to be questioned that the organs themselves have been physically strengthened and enlarged by the exercise, and have thus become more obedient to the will, and better adapted to subserve the purposes of the mind.

The mind acts, there is no doubt, through and by means of cerebral organs, which are physically increased and strengthened by vigorous use, in the same manner and degree as the external organs; and this physiologists account for in both cases, by stating that a greater quantity of blood is determined to those parts which are most actively employed.

In regard to mind, this takes place under the influence of strong desires and impulsive motives by which the faculties are excited into energetic action. The incentives must be present to the mind equally in the one case as in the other.

For as the powers of vision do not become increased by a mere exhibition of sights being presented to the eye, nor the ear by a bare production of sounds neither will the powers of thought be materially benefitted by the mechanical methods of *communicating* knowledge usually prevalent in our schools, but only by the incitements of the motives to be supplied by circumstances, or by the intelligence and efforts of the teacher. The mind, then, is not to be regarded as a mere repository for storing up *objective* facts, and truths already ascertained under a determinate shape and form, but rather as an organ for assimilating to itself the mental aliment which is presented, or which it finds for itself.

The process by which it appropriates knowledge, or makes it its own, is, indeed, strictly analagous to that which is carried on by the digestive organs of the body, which by their functions elaborate the food and separate it into its constituents.

Thus prepared, those portions of it which are nutritive get distributed by the appropriate ducts, to the various parts of the body, of which they come to form a constituent part, or, in the language of physiologists, become *assimilated.* I might pursue the analogy between mind and body still farther, and instance the effects which use and exercise, when considerable in degree, produce upon the limbs, the tendons, and muscular fibre, and, in short, upon the whole physical frame, which is invigorated in proportion to the amount of exercise it undergoes, when not excessive, but this would be superfluous after what I have already shown to be the case respecting the organs of sense. I will subjoin, however, a few observations, exhibiting the consequences which result from a disuse of any member of the body, or from an organ being deprived of its accustomed and appropriate stimulus—leaving to my readers the application, in the confidence that they will not controvert the fact, that the great physiological law of the body is equally applicable to the mind, namely, that what is unused languishes and loses its powers and ultimately its life. I will, on this occasion, confine my remarks to what relates to the eye; and what I have to say regarding that organ will be comprised in a very few words.

The habitual stimulus of light is essential to vision, and for preserving the organ in a fitting state to perform its functions. Were it to be deprived of light for any considerable length of time, vision would become imperfect; and were light to be permanently excluded, it would finally become extinguished.

The fluids of the organ, it is probable, would no longer be secreted, or they would no longer be in a condition to reflect and refract the rays of light, were these latter to be admitted to the eye. The membranes would lose their sensitiveness, and the different tissues, perhaps, become disorganized.

The faculties may be cultivated to a considerable extent without the use of books, and better, frequently, without than with them. Letters, as I have before observed, and the knowledge we cultivate, are to be regarded only as a means, although, when properly and judiciously used, the principal means; and one which we could now but ill dispense with. Yet parents and teachers do not well to look upon literature and its concomitants, as an ultimate consideration. In so doing they will be apt to overlook and neglect the most essential objects of education—the right formation of the minds and characters of their children. Much might here be added with advantage, on the subject of mental culture, but as repetition is unseemly, I refer the reader to an article under that title published in the August and September numbers of the last year's 'Journal,' for much of what I would otherwise say as adapted to the present occasion.

After the foregoing expositions, and with our minds intent upon the principles already developed, let us now take a survey of the old methods of instruction which prevailed almost universally not half a century ago. For although in canvassing their merits, we shall see but little to imitate and much to avoid, yet, in a review of their defects, or objectionable tendencies—much of the leaven of which may yet be found in our schools—we may get a negative instruction. While engaged in this task, and in carefully considering the means by which we can best operate upon the youthful mind, so as to unfold its capabilities and excite in it a love for study and a desire for improvement, we shall do well to keep in mind the sentiment of a philosophic writer, which I have already quoted above, and which I shall use as a text throughout these disquisitions. It is this: "*If you attempt to act upon the mind in a way not adapted to its nature, the least evil you incur is to lose your labor.*" The severe and stringent discipline imposed upon the pupil under the old system, sought to impress the mind by operating upon the body. The fear of punishment, and not the love of learning, was the governing principle thought best adapted to incline the mind to study, and the most suitable means for stimulating the thinking faculties; whether, also, for mending the heart and chastening the affections, I will not say.

The rod and the ferule were more relied upon than any direct means of persuasion, or the excitements of inquiry in the mind itself. This species of discipline was resorted to on the same principle that physicians act upon, when they apply a blister, that of curing a disorder in a part which cannot be got at, by producing the same in another that can. But the effects of fear upon the mind—the fear of physical

punishment—is deadening in its influence upon the faculties, and debasing to the feelings, and is far more likely to produce torpor of the faculties than to quicken them into activity. By this mode of discipline, the bigger the dunce the more he must be flogged, until the bigger a dunce he still becomes. Yet the system was thought, in its day, to be admirable; so much so, that the more rigid and severe a disciplinarian a teacher was, upon this plan, the more highly he was esteemed by the community; and this was the case at a period within my own recollection. The father of the celebrated Archdeacon Paley, taught a grammar school within a mile of my native village. He was more remarkable for his severity than any other teacher known in those parts. He lived and taught there somewhat before my time; but many an eulogy I have heard pronounced upon him, when I was a boy, for his flogging qualities. "He was a prime teacher," said the men of that day, "for he flogged learning into his scholars."

The following observations, applicable to my purpose, are extracted from the "Quarterly Journal of Education," published in 1831, by the "Society for the Diffusion of Useful Knowledge."

"Even now there prevails in our best public schools the draconic practice of the rod, a mere expedient for saving time and trouble to the masters; a practice whereby all sorts of faults are wilfully confounded and assimilated, since teachers of learning and science inflict indiscriminately the same infamous punishment upon all kinds of delinquents, who can deny that amiable, good-natured boys, are daily degraded to the same level with decidedly dishonest, unpromising school-fellows, when their fault is nothing more than some trifling irregularity, or the consequence of some careless habit, for which, perhaps, the master is censurable? but who can wonder at it? For, is it a grosser inconsistency to flog a boy on account of some blunder in his parsing and scanning, than to plague him intentionally with an extra lesson, on account of some pistol-firing, or pane-breaking, or some other faults, which have not the least connection with his studies? We admit, indeed, that boys should acquire the habit of doing the regular school business; but it is beyond our conception, that boys should be punished with lessons because they do not like them. Poor boys! how can you be fond of lessons which you daily see imposed as a punishment? How can you improve in studies? How can you understand the object of studies which cost you so many tears?"

I will not venture to say that stripes should never be inflicted; there may be delinquencies in a pupil, which, at times, make it expedient if not necessary to resort to them—but they should not be used on slight occasions, if ever; and certainly there should be no attempt to flog his lessons into him—a course of procedure by which the mind of the pupil is *acted upon in a way not adapted to its nature*—if we might not rather say that his body is acted upon in a way but little suited to his mind.

Kindness and sympathy in the teacher, are the most unequivocal tests by which he can manifest to his pupils the interest he takes in their welfare and advancement. The exercise of these will be found to be the most effectual means for influencing the mind, by enlisting

the feelings; they are what every child can understand and appreciate—and we may, by their means, win him over to our purpose, when every other expedient has failed. Nor need these manifestations be accompanied by a demeanor that is too familiar, or which might amount to a pernicious indulgence. A proper judgment will always guide the teacher, and direct him in what manner, and on what occasions, to administer kindness and exhibit sympathy.

He must becomingly sustain his dignity, and maintain his respectability. But the world has been slow to believe in the efficacy of kindness; it is beginning, though late, to learn how much more potent an instrument it is, when accompanied by sincerity, for working out a good purpose with our fellow men, whether of conciliation or reform, than that of the opposite course, by the practice of harshness and duplicity. But I must not longer indulge that sentimental vein of thought which I am so prone to get into, but go on with my strictures. Under the old system, memory was singled out from all the other powers of the mind, and cultivated almost exclusively. It was put in constant requisition, and the number of words was beyond all proportion greater than that of the ideas acquired; and this is too much the case at the present time.

The mind of the pupil was wearied and oppressed with an endless routine of unmeaning tasks, until his books and his lessons became hateful to his sight; and certainly, if we were desirous of giving the youth a distaste for knowledge, and a disgust for his studies, no means could more effectually answer that purpose: this is to "act upon the mind in a way not adapted to its nature."

It wearies without interesting; for it is labor in which the faculties are but little, if at all, concerned. I will again resort to the pages of the "Quarterly Journal of Education," for additional light, which I shall probably have repeated occasions for using. A writer in that journal observes as follows: "We can scarcely too much deprecate that system of instruction in which every valuable rule is committed to memory—where every species of information, useless as well as useful, is made the subject of question and answer, and the words of the author are to be carefully repeated. So far from insisting that the pupils should go through these wearisome tasks, the rational instructor would never require them, and would interdict the system of answering questions by rote. Let it be remembered that reasonable beings, not parrots, are the objects under instruction, and that they have other and higher faculties to be cultivated than mere memory.

"Now it happens that of all the powers of the mind, memory, as far as it is merely the aptitude of learning by rote, is of the least consequence to us in after life; and yet this faculty, useful only as a subordinate—this humble assistant to the nobler powers of judgment, reason, and invention—usurps their place, and reigns paramount in the academic hall. It would be as reasonable in developing the physical powers, if only one set of muscles were brought into action.

"It is said by the advocates of mnemonic tuition, that memory alone can be cultivated in childhood, as the other powers of the mind do not show themselves until riper years. This is entirely a fallacy; it is always found, where the attempt has been made, to call forth higher

faculties, that memory is precisely that one which they find most irksome to exercise, except as the handmaid to other powers." * * * * "When the system of cultivating the memory alone is wholly pursued, instead of inviting on to knowledge, every thing is done to create and affirm a distaste for it.

"Long tasks are assigned whose meanings are not understood, and the memory is stored with terms to which no ideas are affixed. The understanding has no part in education; a quick memory gains the palm; and, in consequence, the pupil grows up without ever having learned to think. It is essentially necessary, in plans of rational education, never to teach children any thing which they cannot perfectly comprehend; if a subject prove too abstruse, put it aside till their more ripened intellects enable them to comprehend it. Perhaps, in pursuing this method, they may sometimes appear backward in the race; and maternal vanity, or rather an amiable diffidence in her own powers of instruction, may induce a mother to stimulate her pupils to an injurious exertion.

"She cannot be too earnestly dissuaded from this course. Let her ever keep in recollection, that she must be carefully storing the minds of her children with clear ideas, giving them the love of knowledge, and the habit of exercising their understandings; and that it is of the first consequence to the success of her efforts, that she does not make learning assume a repulsive shape."

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## NO. IV.

### THE INTELLECTUAL DISCIPLINE OF SCHOOLS—*continued.*

In resuming my strictures on the old methods of instruction, I have to remark, in continuation of the subject, that the whole discipline of the school was mechanical rather than intellectual. Every process was worked out by square and rule, and mind was dealt with as if it were matter. It was used more like a machine for shaping out determinate and previously modelled forms, than as an efficient power capable of original and spontaneous action. Rules were given in abundance, but they were learned and applied by rote; the reasons and principles on which they were founded being permitted to rest undisturbed in the deep recesses of thought, to be found only in minds of mathematical or other learned research of high order. They were but rarely explained or reverted to. No analysis was instituted, and no inquiry was excited in the mind of the pupil. The pupil, therefore, and too frequently his preceptor also, being thus innocent of reasons, was engaged, as I before said, in a mere mechanical labor unproductive in intellectual fruits, and more calculated, indeed, to discourage and repress the efforts of the understanding, than to call forth its powers. There was his task-work ever before him, day by day, and hour by hour; that he knew must be performed, and nothing more was required of him.

Well may we exclaim, "poor boys! how can you improve in stu-

dies?" how can you, under such a system, comprehend what you are required to study, or perform the mental labor imposed upon you, when you are not permitted leisure to *think?*

The advance that was made, and the reason which became developed, under this rigid and irrational system, was made and developed —when such happened to be the case—by the force of native intellect, and the energy supplied by self-reliance, in spite of the impediments placed in the way. And certainly that portion of knowledge which was obtained by these means, became stereotyped upon the mind; but it was apt to be pedantic, and the mind of the scholar narrow in its conceptions—and mainly because it had not been exercised in a sufficient variety of knowledge. A writer in the "Quarterly Journal of Education," has the following observations, appropriate to this branch of my subject:

"Although great progress has been made in rational education, the science is still in its infancy, and but imperfectly understood by the generality of instructors. The light of reason has indeed dawned in all its brightness upon the few; but it has not yet dispelled the mists of prejudice and ignorance, which have so long enveloped this subject. When, however, we consider how much has been accomplished in a short period, we cannot but augur favorably for the future. Till nearly the close of the last century, narrow-minded notions on the objects of education, and a careless neglect of its value, almost universally prevailed.

"The duty of parents, in forming the minds of their children, was then supposed to consist in sending them to school at a certain age, and dooming them, for a certain number of years, to the irrational discipline of instructors, whose study was not so much how to improve their scholars, as by what means they could render the task as little burdensome as possible to themselves. The ciphering books of the sons, skilfully adorned with many intricate flourishes of penmanship, and the sampiers of the daughters, artfully worked in all the worsted beauties of cross-stitch trees and landscapes, were taken by parents as sufficient evidence of their children's proficiency. At that period, young persons, and especially females, who were desirous of enlarging the scanty stock of knowledge which they had received at school, found the greatest difficulty in gratifying their wishes.

"They could obtain no elementary books, no rational explanations of the phenomena of nature by which they were surrounded, and were forced, unassisted, and perhaps even discouraged, to win their way to intellectual acquirements, which it thus demanded no ordinary energy to attain. Where this energy existed, these very difficulties, and this dependence on self, undoubtedly tended to strengthen the mind, and to sharpen the intellect.

"Yet, where the soil has not been duly prepared, and the seeds of knowledge have not been sown, how few are ever found, in after life, striving to enrich their minds by the pursuit of objects which ennoble our nature!"

From the representations made above, in this and the preceding article, in regard to the old methods of instruction, it must be evident to the reader that the maxims which I have laid down for my guid-

ance, in thus treating of school discipline, were violated or disregarded; the course pursued was not such as to "excite in the pupil a love for his studies;" and the mind was acted upon in a way not adapted to its nature.

The harsher features of the system, consisting in the discipline of the rod and ferule, have long since been relaxed by teachers, and the public mind has become sufficiently hostile, perhaps, to a renewed exhibition of them, that we need be under no apprehension of their reappearance; but, whether it may not be that there is now too great a relaxation in our schools, generally, may be a subject deserving our inquiry.

It is not the discontinuance of the practice of flogging that I would regard as objectionable; that practice, I think, we may well dispense with, under laws and regulations properly maintained; but it is the prevalent want of due subordination in our youth, which, in the present day, I should complain of and protest against. This grows out of a mistaken feeling of independence, and absurd notions of republican self-government, which are, in the school room, out of place, or not in keeping with the circumstances in which they are entertained. This is more especially the case in the higher institutions of learning—our colleges and universities—where beardless boys are aiming to wrest the sceptre from their teacher, and usurp the dominion. If I am rightly informed, cases of insubordination to the well-known regulations of the institution have not unfrequently occurred, which were strictly rebellious.

It is, by the interference of parents and the public generally, that these evils can alone be corrected; but it is to be feared that they are more in fault than the actual delinquents, in regarding such instances with too lenient a temper, if they do not directly give countenance and encouragement to them.

Efficient discipline is necessary to the permanent prosperity of our literary institutions; and it is not to be expected that the objects for which they were founded, can be attained by leaving their government to the suffrages of the students themselves, or that they can ever prosper under such guidance. The government of our seminaries should be established and conducted on the parental model; it should be authoritative, while it is conciliatory. A literary institution is only an extended family, subjected to the authority of a united head. But, whoever thought of branding a parent with despotism, because he did not call his wise infants, children, and domestics, to aid him in making laws for their government? It is highly necessary for the interests of all, that the teacher should, in a suitable manner, maintain his authority—make himself respected, as well as loved; but, in properly enforcing the regulations of his school, he requires support from without.

If parents would rightly discharge *their* duties, his task, in this respect, would be an easy one; but unfortunately they are, in too many instances, neglectful of this, or not sufficiently impressed with the necessity and importance of exercising a careful vigilance over the morals and habits of their children. They are over partial in their regards, and too inconsistent in their conduct and the course they

pursue with them; and yet they frequently require or expect the teacher to do that which they themselves are unable or unwilling to effect with their own children, and to do it without the exercise of severity. The teacher, however, may do much even in the worst cases, by a firm, decided, and consistent course of conduct, and without having recourse to any undue severity; but the exercise of tact and judgment will be necessary, as well as no small degree of forbearance.

"Much, indeed, of a child's progress will depend on the moral character of the teacher, and his fitness for the business of tuition. The dispositions of teachers vary. One may be kind and prepossessing in manners, and so exert a powerful influence over the child's will and affections; while another, of less kindly nature, is impatient and ill-humored, and communicates all his unamiable feelings to his pupil, without possessing any useful influence over him.

"One sees the child as he is, volatile and playful—in short, a child; the other forgets the disparity of their years and intellect, and feels surprised and disappointed at what he calls the lad's stupidity; merely because himself is stupid enough to forget that he has a child to teach, and not a man!"*

After these remarks upon the defects inherent in the old system of instruction, sufficient for our purpose, let us now turn our attention to existing modes of teaching among ourselves, here in the west—consider the defects which still remain—sufficiently numerous—and inquire how they may be remedied?

There is yet, in the methods of instruction pursued in our schools, too much mechanical detail, and too little exercise is given to the understanding of the pupil. The generality of teachers, themselves, are too little informed in those methods which are best adapted to the development of thought, and which are now being successfully employed, though by no means generally, in many countries much older and farther advanced in a knowledge of the science, than can be presumed to be the case with respect to our own. Too much use is made of books, while the books themselves are far from being what they ought to be, and oral instruction is too sparingly given. Children, with the book before them, are far more intent upon the words than upon the ideas they are meant to convey. They get their lessons from its pages, therefore too much by rote; and, if our school books were better adapted to the purposes they are designed for, they would still be used too mechanically by the child, as all books frequently are by the adult. Children want more lively images of ideas than can be presented to their minds in words on a printed page.

Their powers of attention are yet very feeble, and they are altogether incapable of abstraction until somewhat advanced. Their reason is but slightly developed; but their imaginations are strong and lively, and forcibly impressed by sensible images and living objects.

Nor can I, for this reason, approve even of the series of questions usually appended to school books, while there is a competent living teacher, whose office it should be to propound questions. What the teacher himself says, and the interrogatories he puts, are much more likely to elicit thought, and excite inquiry, than any thing which is

* Quarterly Journal of Education.

contained in the book. Besides, children are apt to think that what the teacher says is easier to comprehend than the language of the book, and they will make some efforts to understand him. I may add, also, unless the remark be thought too refined, that intelligence, in this instance, is more directly and more simply conveyed to the mind through the ear than through the eye. This latter organ somewhat distracts the mind with images—the combinations of letters and syllables, which are but the signs of words—at least this may be the case in regard to children, whose minds have thus a two-fold operation to perform; they have first to interpret these signs, and then the words, which are themselves signs, before they can arrive at the thing signified; while the ear receives the words themselves, accompanied by the expressive intonations of the voice. Books, notwithstanding, are to some extent indispensable; but, as I have before said, they should be less resorted to, and used after a different manner. Our system of instruction is, in some respects, radically and essentially erroneous; we begin where we should end, by teaching systematized knowledge at too early a period, and before the mind of the child is at all prepared for receiving it.

In doing so, we necessarily use a language which is in great part incomprehensible to the child who is as yet, and before he has been trained in the intellectual part of reading—which is, indeed, rarely done—only capable of apprehending simple and not compound ideas. As before remarked, the efforts of the teacher should be directed mainly with the view of *preparing* the minds of his pupils for the reception of knowledge, rather than actually to communicate it. He must, indeed, use knowledge of some kind for this purpose, but it need not, nor ought it, to be exclusively that contained in those branches usually taught in schools; he should direct their attention to objects and their properties, as well as to words—learn them the art of distinguishing, and teach them to observe nature.

And here we may fitly ask the questions, what is knowledge? and how is it acquired? Is it a something to be received passively by the mind, with which the memory alone is concerned? or is it not rather what the mind obtains for itself, by its own action upon that which is presented to it? The phrase to "communicate knowledge," commonly used by us, gives a false idea of the manner in which it is obtained; it would seem to indicate that it can be conveyed directly to the mind, as food and liquids are conveyed into the stomach; or be infused into it by the teacher, as water is poured from one vessel into another. But it is not in the power of the teacher so to impart it to his pupils. He must, it is true, supply them with materials; but, unless he can so operate upon their minds, as to cause them to act upon those materials, in a manner which, indeed, bears some analogy to the action of the stomach upon the food which it receives, it will not be knowledge which they get, nor will their minds be nourished by what is thus furnished them, any more than the body would be nourished by food remaining undigested.

But this will not be done by the pupils on the simple injunction of the teacher, any more than they will acquire knowledge by the circumstance of his merely stating to them what it is that he wishes them

to know. There is too much *communicated* by the teacher, and not enough left to the operation of their own minds.

He should, indeed, explain and illustrate his subject in every possible way, but he should incite the minds of his pupils by all the ingenuity he is master of, to make discoveries for themselves.

He can best succeed in doing this by leading them on from one step of progress to another, by a series of judicious interrogatories adapted to their years and capacities. That this is the course most in accordance with the nature of the child's mind, and the means best adapted for exciting thought and inquiry—the object we should aim at—there can be no doubt. In doing this we seize upon, and address ourselves to the principle of curiosity inherent in the mind, and implanted there for the purpose, we may presume, and which, if rightly regarded will of itself sufficiently indicate to us how we are to proceed.

The pupil, when he succeeds in answering a question thus put to him, unpremeditatedly, or, in solving a difficulty which required from him, perhaps, some acuteness of discernment, is gratified with the exercise of his own ingenuity. He gets a habit of turning a thing over in his mind, and of regarding it in its various aspects; thought, in him becomes vigorous and energetic, and he comes to take delight in its exercise. He gets to understand his lessons thoroughly, for he is taught to work out every problem by a regular process.

Instead of regarding his intellectual labor as a task that is irksome, he finds in it a means of entertainment. These facts and representations may serve to assure us that, so far as a judicious system of interrogatories is concerned, we have by means of it, attained to a correct discipline of the intellect; one that accords with the essential condition to be observed for exciting thought in the pupil, and producing in him a love for his studies. We act upon *the mind in a way that is adapted to its nature.* The principle of curiosity in the mind is that which stimulates to enquiry.

Without it we could make no progress in knowledge of any kind, for we should feel no interest in the acquisition. When employed upon laudable objects and so directed as chiefly to expend its force upon what is curious in nature and art, and to concern itself with the history of man, and the progress of the human mind, it can scarcely be too much excited in minds that are maturing; although we should be careful not to over-task the faculties of young children, but should exercise them moderately, and afford sufficient opportunities for physical development.

But when curiosity becomes misdirected, or is left to exert itself upon objects unworthy of our rational nature, it comes to be employed upon trifles, and is apt to exhaust itself upon neighborhood news and personal scandal. It then obtains its chief gratification from busy intermeddlings with the affairs of others, and we term it *inquisitiveness.* Under this character my readers will be sufficiently aware that it needs not to be excited, but repressed.

With a view to carrying out the principles which I am here endeavoring to explain and develop, let us now turn our attention to the first elements of learning, and inquire what exercise the teacher can find for the minds of his pupils in their reading lessons. Teachers,

generally, while giving instructions in reading, regard it as a matter of minor consequence. They undertake it as a necessary piece of drudgery, because children must become acquainted with words before they can in any manner proceed further, whether ideas be affixed to them or not. They necessarily direct their attention to syllables, spelling, pronunciation, &c.; and if what relates to these is performed with ordinary dexterity, they are satisfied, without any apparent consciousness that their duties extend to anything beyond this, or that any further use can be made of the lesson. It is hurried over as a mere mechanical exercise, and as if nothing but voice and memory were of any concern. Emphasis and the proper modulations of the voice even, are but seldom duly regarded. The child is permitted to read, frequently, in a monotonous and disagreeable tone of voice, quite different from that which he uses when talking. He reads without understanding, and he cannot, therefore, read well—a consideration which, of itself, is well worth regarding, if nothing else were involved. When thus taught, it is often the case that the child is scarcely aware that any meaning is attached to the language in the book, and his lesson becomes indeed a drudgery to him, and it is not to be wondered at if he takes a distaste to it, and to his studies generally.

He is subsequently taken through other branches of learning without being made acquainted with the terms—with the language in which they are attempted to be taught, although his mother tongue. The advances which he makes in his studies, therefore, are necessarily tardy, and the exercises imposed upon him become wearisome; what wonder! Thus years are uselessly spent at school, and, in all that relates to the true objects of education, worse than uselessly. A permanent injury is often inflicted upon the intellects of children by the irrational methods pursued in attempting to teach them knowledge without exercising their understandings.

Their faculties get into a state of torpor from the difficulties and discouragements they meet with in their unmeaning task-work; and it will be found much more difficult, subsequently, to rouse them into activity, when a different and rational course is resorted to. Mental habits have been formed which resist a correct discipline: and to unlearn is harder than to learn. If children cannot be instructed at home, and must go to such schools and such teachers as I am here regarding, it would be better not to send them until they have attained the age of ten or twelve years, even should they not previously have learned a letter. They will at those years, be more capable of comprehending their task-work, and their faculties will not be in the same danger. When fourteen or fifteen years of age they will have better informed minds than if they had been kept at school from five years old up to that period, and their capacities for further acquisition will be less blunted. But to whatever kind of a teacher parents send their children, they but ill-acquit themselves of their parental trust, if they neglect giving them instruction at home. Their auxiliaries are a great advantage to their children.

Notwithstanding the little estimation in which the exercise of reading is mostly held in schools, the lessons of children, while thus en-

gaged, can be so conducted, there is no doubt, as to afford one of the best mental disciplines that can be employed. In reading, there is an intellectual as well as a mechanical department, which equally demands the attention of the teacher, and it should be his care, at all times, that the child comprehends, as much as possible, every word in his lesson, and the meaning and import of every sentence which he reads. And if he has correct views of his duty, he will, during the recital, put frequent interrogatories to him, and take every opportunity of illustrating the subject of the lesson, by explaining every allusion to facts in history and science, or in relation to any other matters which occur, and this without any regard to the slowness of the progress made in getting over the page.

And as the pupil advances in his knowledge of language, and his comprehensiveness increases, the competent teacher will occasionally exercise him in the finding of synonyms for words, and in the task of expressing the same idea or thing in a different phraseology. And when a knowledge of the grammatical construction has been obtained, he will point out to him the beauties and defects—if any—of the composition; direct his attention to tropes and figures, and explain and illustrate them.

At the age when a child is generally first taught his letters and learns to read, it has but a very imperfect knowledge of language. The words it has used, and which alone it comprehends, are such only as are suited to its simple ideas, and which latter mostly relate to tangible and visible objects.

Our language, itself, in its present advanced state, is a medium of thought and communication of a profound and complex structure, and is only to be mastered in its full extent by a long and laborious study.

It has become what it is by slow degrees, improving as knowledge has increased, and as the human mind became expanded by taking a wider and still wider range of enquiry, and under the care, and by the wants, of the most highly cultivated intellects.

Language and cultivation act and re-act the one upon the other; cultivation, or the acquisition of knowledge contributes to the improvement of language, and the improvement thus obtained, facilitates further acquisitions. Language is indebted to poetry—to the efforts of the imagination—for its embellishments; it is indebted to philosophy, or the higher efforts of an exalted reason, for its general terms, its expressiveness and comprehensiveness.

Our speech abounds more and more with words that express complex and general ideas, and with terms for condensing thought, which require powers of abstraction far beyond any which the mind of the child is equal to, or can be made to comprehend. And this is so much the case that it has become necessary to prosecute the study of language, even of our mother tongue, as a distinct object, which must be entered upon, in what relates to its complexity, only in proportion as the mind of the student matures and becomes capable of analyzing it; and this, apart from its direct uses, is a mental exercise as beneficial as any other.

Words are the main instruments of thought, and the full development of our reasoning and other powers of mind, depends very much

upon our knowledge and use of language. "Words," says an ingenious author, "are of the utmost importance to the human understanding. Almost all the ideas employed by us in matters of reasoning have been acquired by words. In our most retired contemplations we think for the most part in words. Without words, uttered or thought upon, we could not probably carry on any long train of deduction. The science of thinking, therefore, is little else than the science of words.

"He that has not become accustomed to refine upon words, and discriminate their shades of meaning, will think and reason after a very inaccurate and slovenly manner. He that is not able to call his ideas by various names, borrowed from various languages, will scarcely be able to conceive his idea in any way precise, close, and unconfused. If, therefore, a man were confined in a desert island, and would never again have occasion so much as to hear the sound of his own voice, yet if at the same time he would successfully cultivate his understanding, he must apply himself to a minute and persevering study of words and language."*

The mind of the child is most strongly impressed with sensible objects; it requires images and not abstractions; if it is impressed with words it is rather when they are oral than as read in the book. The printed page, even when studiously divested of words expressive of complex ideas, conveys but little meaning to its mind.

The child has to learn to read, and is far more intent upon the words themselves, the letters that form them, and the sounds to be given them, than upon the ideas which they are intended to convey.

But he must be trained in the mechanical part of reading, and while so trained, his attention is directed to letters, syllables, pronunciation, punctuation, &c., that with his mind thus engaged, it is not to be expected that he will have his thoughts employed upon the significancy of sentences, or even upon the import of words, unless specially and separately exercised in that way by his instructor, but which the instructor rarely undertakes to do. Without this intellectual discipline, the child gets a habit of reading with but little regard to such matters, and which adheres to him in a great measure it may be through life.

It must be recollected that mere reading and writing are not education, as they are sometimes erroneously deemed; they are not knowledge, but the instruments or means only, by which knowledge is to be obtained. These arts may be accurately and extensively acquired with but little effort of thought. Education regards the exercise of the understanding, and school discipline, to be effective for that purpose, and really beneficial to the mind itself, must not be merely imitative and mechanical, but intellectual.

But the course here recommended, were it to be closely adhered to by a teacher, would be little satisfactory to those parents who, having no independent or intelligent views of their own, are unduly attached to usage. They would not be persuaded that their children were making progress in learning. The teacher, in the estimation of patrons such as these, must pass his pupils quickly from class to class,

* William Godwin.

and from one book to another; he must hasten to induct them into the usual branches of arithmetic, geography and the mysteries of grammar. Unless he does this he becomes obnoxious to their censure and rebuke, however much he may be engaged in exercising their understandings.

The importance of a correct early training, both intellectually and morally, is in general, but little appreciated. "It has been observed," remarks Miss Edgeworth, "that what we are when we are twenty, depends upon what we were when we were ten years old. What a young man is at college, depends upon what he wasat school; and what he is at school, depends upon what he was before he went to shcool. In his father's house, the first important lessons, those which decide his future abilities and character, must be learned." * * * "Suppose that parents educated their children well for the first eight or nine years of their lives, and then sent them all to public seminaries, what a difference this must immediately make in public education; the boys would all be disposed to improve themselves with all the ardor which the most sanguine preceptor would desire; their tutors would find that there was nothing to be *unlearned;* no habits of idleness to conquer; no perverse stupidity would provoke them; no capricious contempt of application would appear in pupils of the quickest abilities. The moral education could be made a part of the preceptor's care, with some hopes of success." * * * "Ten well educated boys, sent to a public seminary at nine or ten years old, would, probably, far surpass their competitors in every respect; they would inspire others with so much emulation, would do their parents and preceptors so much credit, that numbers would eagerly inquire into the causes of their superiority; and these boys would, perhaps, do more good by their example, than by their actual acquirements."*

[Practical Discipline to be continued.]

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## ART. III.—ON THE NATURAL HISTORY OF MAN.

BY PETER E. BLAND, ESQ., OF MO.

THROUGHOUT the works of God, is manifest a harmony striking and beautiful. How vast is nature! How innumerable her various parts! How stupendous some of her movements! Yet, so nicely are those parts adjusted, and so harmonious are those movements, that we behold a universe in eternal motion—its countless systems sweeping on in their accustomed course—without the slightest discord.

* Practical Education.

Of creation there are two grand divisions, organized and inorganized. Of the organized there are two divisions, called the animal and vegetable kingdoms. These two, with inorganized creation, constitute the three great departments of nature, which gradually approach, and almost imperceptibly pass into one another. There is a regular grade of the relative importance of the parts of each department, and of the departments themselves. Step by step inorganized matter rises higher in the scale. We see it, a grain of sand, driven to and fro by the wind—we behold it the massive granite, towering, in mountains, amid the clouds, defying the hand of time and the tempests of a thousand ages. There is grandeur in inorganized nature; and, in looking upon some of her scenery, the soul is often full of rapture, mingled with awe.

But, turn the eye upon a spear of grass, and tell me if there be not progression, even from the proudest of inorganic to the humblest of organic creation. The one is indeed grand—sublime; but the other is beautiful in its simplicity, and awakes reflection in the mind. What mysterious hand directs its silent development? I saw it in its infancy, just peeping above the soil. Day by day it stole up and up, until it reached its maturity, and was perfect in all its functions. The mystery, said I, is beautiful, and the tender spear of grass is a monument to the minuteness of the Creator's care.

Pass on to the flowering plant—the shrub—the fruit tree, till the eye rests on the tall cedar of Lebanon, or the majestic oak of America, and you behold the vegetable kingdom rising gradually round by round, from its lowest to its highest orders.

In the animal kingdom, the same regular advancement is perceptible. Its lowest order stands one step above the highest of vegetable creation. Delight and wonder may fill the soul of one, while he looks upon the oak, towering above its neighbors, beautiful in the symmetry and strength of its parts. While he reflects upon its structures—upon its circulatory apparatus, drawing from the earth its juices, and forcing them a hundred feet perpendicular, to the highest branches—upon the leaf, the great chemical apparatus of the plant, receiving the juices in the upper surface, where, acted upon by the sunlight, they become elaborated sap, descend to the lower surface, and are thence distributed to all parts of the body—while he reflects upon these things, he is ready to say, here is the perfection of wisdom—here is beauty—beauty of external appearance, of internal structure, and of that mysterious development which has lifted, in silent and observeless progress, the majestic oak from the acorn sprout.

But, who has noticed attentively the crawling worm, without finding something superior to this, even in its humble existence? Estimate the two, not by the idea of importance, which arises from the uses to which they may be applied, but as isolated from the world around, in their intrinsic importance. The organic structures of each is alike wonderful. The one is rooted to the earth, the other passes freely where it listeth. The one has proudly lifted itself up—stood for ages—defied a thousand storms—but has never experienced a single sensation. The other, though feeble and transitory in its existence, may be, on account of its sensitive organization, the subject of most thril-

ling delight. The one is an unconscious, the other a conscious, being. But, as we pass to the higher orders, how beautifully does animal organism develop itself. Rising gradually in the scale of its perfection, it appears complete in man, the capstone of the vast pyramid of created nature.

Having hurriedly glanced at the progress of creation, and placed man at the summit in the scale of importance, I inquire what are his distinctive features, and is he entitled to the exalted place to which I have assigned him?

In his physical structure there are characteristics, sufficiently marked and numerous, to distinguish him from all other animals; but the question, as to his true position among created beings, must be determined upon other and higher considerations.

Regarding man, then, only in reference to his physical structure, we find him the only genus of his order, which is the bimana. This order reunites with three others in the class mamalia. This class reunites with three others in the division animalia vertebrata. This division reunites with three others in the animal kingdom, which comprehends all animal organization, and its essential characteristics are sensation and voluntary motion.

The order which approaches nearest to man in its conformation, is the quadrumana, which embraces within it all the monkey tribes. So nearly does this order approach the bimana, that it is called by the Malayans "Ourang Outang"—Ourang, in the Malay tongue, being applied in common to this species of monkey, and to man; and Outang, signifying of the woods, the whole name signifies "Man of the Woods," or "Wild Man." And this name, thus signifying, has been received by the great natural historians of Europe and this country.

But, examining more closely, we find this remarkable difference between these two orders: The whole conformation of man indicates that he was designed to walk upright. The leg is so long, in proportion to the arm, and the foot so inflexible, that he would proceed upon all fours with the utmost difficulty; and, on account of the peculiar arrangement of the circulatory apparatus, would be constantly, thus proceeding, in danger of apoplexy. While his head is heavier, in proportion to his body, than that of all other animals, his means of supporting it are weaker; for the cervical ligament, says Cuvier, is entirely wanting in him, and the arrangement of the vertebræ of the neck, is not such as to prevent their flexure forward; and hence it would be impossible for him to hold up his head any length of time, were he to attempt to go on all fours.

But, in the erect position, the leg bears vertically upon a large, strong, and slightly flexible foot, forming an ample base for the support of the body. While his head rests in equilibrium upon the spinal column, its articulation with it being about the centre of its mass.

On the other hand, although the Ourang and other monkeys can walk upright, and very frequently do, it is by no means their natural position. The toes of the hind feet are free and opposable to the others, which are as long and flexible as fingers; these feet are therefore hands, and hence the name of the order, quadrumana. It must be perceived, at a glance, that these thin, flexible hands, could not

afford a base, sufficiently ample for the support of the body constantly upright; while that very flexibility, together with the length of the fore arm, causes the prone position to be easy and natural.

Man, then, is a biped bimana; his natural position is the upright, his feet large, broad, and nearly inflexible; his great toe is on a line with the others, and is not opposable to them, as it is in the foot of the monkey; he possesses the senses of seeing, hearing, taste, feeling and smelling, in great perfection; but this perfection consists not so much in the power of those senses, as in their refinement; his two eyes are not placed as is usual with animals, towards the side of the head, but are directed forwards, and are situated on each side of the nose, which is quite prominent; and his head is much larger, in proportion to his size, than any other animal, especially the front part, so that we find his forehead high and expanded.

According to Cuvier, there are three varieties of the human family—the Caucassian, the Mongolian, and the Negro. Other naturalists add a fourth, embracing all the American tribes of Indians. This race seems to me to be somewhat intermediate of the Caucassian and Mongolian, having more the features of the former—the color of the latter.

The Caucassian is the white race, varying from very fair, according to circumstances of climate, &c., to the tawny; hair varying from black, through the different shades of auburn and red, to the light, and features regular and handsome. The affiliation of tribes, in respect to languages, habits, and features, appears to refer the origin of this race to the neighborhood of the Caucassian Mountains, situated on the line which divides Europe from Asia, and between the Black and Caspian Seas. From thence its tribes seem to have gone forth in every direction. To the southward went the Syrian branch, which produced the Assyrian, the Arab, and the Chaldean; also the Phœnicians, Jews, and Abyssinians. The Indian to the southeast, and the German and Pelasgic branches into Europe. The Scythians, the Tartars, the Finlanders and Hungarians, are considered branches of the Indian family.

This great race is far in advance of all others in civilization, the arts and sciences, in religious systems, and in intellectual strength.

The Mongolian race inhabits the extensive country lying between the Pacific on the east, and the Tartar tribes on the north and west, and the Indian on the southwest. The complexion of this race is dark olive; the cheek bones high, eyes narrow and oblique, and the visage not so oval as in the other varieties. The people of the Chinese Empire are, at present, its most distinguished branch.

The Negro inhabits Africa. His complexion is black, his hair black, short, and kinked; his nose is flat, lips thick, and forehead generally contracted. In civilization and mental power, this race seems to be far behind the others.

The American Indian dwelt on this continent when it was discovered by Columbus. His features nearly resemble those of the Caucassian, and also the form of his head; but his color is rather that of copper. His hair is straight, coarse, and black. When uncorrupted by the white man, proud and stately in his bearing, bold and generous in his disposition, he is a noble example of humanity in an uncultivated state.

The question now arises, whence did these varieties spring? Did they all originate from one common centre of creation, or does each trace back its origin to a separate distinct centre?

We are not left wholly to conjecture on this point. The venerable historian of the sacred writings informs us that God made man, male and female, and from them the world has been peopled.

But how, says the sceptic, do you deduce the fair, beautiful Caucassian, and the jetty African, from the same parent? And, on the bare appearance of incompatability here, without further investigation, he casts aside the divine record as false, and tramples upon the truth of science. Inquire of the natural historian, profound in his researches, and he tells you the five varieties are identical in kind; for the result of the intermarriage of individuals differing in variety, is offspring, which resembles both parents; and this offspring is as productive as the original varieties; but, if the varieties were not identical in kind, this could not be, for observation has brought to light the great law that the offspring of dissimilar kinds cannot reproduce.

Ask of the anatomist, whose head has become white with age, while searching out the hidden things of his science, and he tells you that every bone and every muscle, every nerve, every part, from the greatest to the most minute, is precisely similar, both in form and functions, throughout all the varieties.

Is it more philosophical, then, to derive these varieties, identical in everything that characterizes the human being, from one centre of creation, thus linking humanity together by the strong ties of kindred, or to derive them against the fitness of things, and a positive historical record, from five centres?

Grant your doctrine, says the inquirer for truth, yet how do you reconcile those differences of color, &c., which, though they do not affect the essential characteristics of the species, are very marked?

The history of Jacob furnishes an illustration. A mother, at one birth, gives to the world two sons. The one, like his parents, is without hair; the other is as hairy as a kid, for it was the skin of a kid covering the hands and arms of Jacob, that deceived the father when he blessed the younger, supposing him to be the older. Now here is a difference between two brothers, as remarkable as that between the Ethiopian and European; but this has never been urged as an objection to the sacred book in which it is recorded, for it naturally occurs to every one that it was a case of accident of birth.

Why, then, should accidents of birth in regard to color be deemed incredible? More than this. Why should it be thought strange that He who is omnipotent should overrule the conditions of birth in such a manner, that the offspring may differ in color from the parent? His works proclaim him of wisdom and goodness infinite, and therefore, if circumstances required such interference, we would reasonably expect it.

The climate of Europe, all know, is far better adapted to the fair complexion than the black; while the white man who goes to Africa, seems but to seek his grave. Yet so congenial is that climate to the black, that there he enjoys health and long life.

It appears, then, that the Creator, in his great design of peopling

every country and clime with an identical race, had ample reasons for interfering in the manner suggested, that is, that in a few but sufficient number of cases, with wise design, overruled the conditions of birth, in regard to color.

That mode of accounting for the varieties of color from the effect of warm climates on the skin, darkening it, is not sustained by facts; for climate never renders the white man as black as the negro, and he, returning to his native place, browned as much as may be, soon recovers his former fairness. On the other hand, the negro will remain, generation after generation, in high latitudes, without becoming the slightest shade whiter.

In explaining the unity of the human family, one difficulty yet remains, and that is to account for the Indian of America being here while we deduce him, and the varieties of the eastern continent from the same parent stock.

On this subject there have been many theories and discussions, which left it about as they found it.

On either side of this continent, says one, are boundless waters; how then could a people have reached it, whose only means of navigation was the frail canoe—their only guide the sun and stars? Another starts a question of perhaps greater difficulty, though of minor importance. Admitting, says he, that our Indians were originally from the eastern continent, under what variety do you range them?

As to the first question, it answers my purpose fully to show the possibility of such a passage; for the whole strength of the objection under consideration, rests on its impossibility.

It is known to every one that the two continents approach each other towards the north, until they are separated by a strait only twenty-six miles in width. East Cape and Cape Prince of Wales, lie in latitude about 68 deg. north; and hence, for the greater portion of the year, are connected by a firm bridge of ice. Is it at all incredible, that men, either in pursuit of game or led on by curiosity, or driven before a more powerful tribe, should accomplish the passage of this bridge? Should any object on account of the severity of climate incident to so high a latitude, they should bear in mind that navigators have penetrated to about 75 deg. north.

But the passage may have been effected in the summer. The Aleutian Isles extend entirely across from Kamschatka to Alaska. Guided by this chain, how easy for men to have passed in canoes from isle to isle, until at last they found themselves on the American shore. This they might do either from curiosity, or intentionally seeking a better country, or drifting before the wind.

The second question, as to the variety to which our Indians originally belonged, cannot be answered with certainty. I believe they are most generally referred to the Tartar branch of the Caucassian race. But whether this be true, or whether they themselves form a distinct variety, I shall not here discuss. In either case it is entirely possible, and indeed most probable, that they were driven forward by more warlike tribes, until reaching Behring's Straits, or the Aleutian Isles, they passed over to this continent as already suggested.

It appears, then, that man forms a separate distinct order of the

animal kingdom, as abundantly shown in the characteristics which mark his physical structure—that all the varieties unite in this order, are identical in kind, and have sprung from one pair of parents.

But, in this there is nothing to distinguish man as a superior, but only as a distinct animal. We may as easily distinguish the quadrumana, or quadruped, in the same way. Shall we rest here? Nay rather let us start the question, is the human being a mere animal, sufficiently marked indeed by those great features which separate him from others, and mark his order? or is he an entirely different and superior being, of whom the physical structure, which allies him to the animal world, is but an inconsiderable part?

The gradual rise in the scale of the comparative importance of the departments of creation, which I noticed in the outset, from inorganic matter, through the vegetable kingdom, and the various orders of the animal, up to the most perfect animal organization, seems to indicate that nature ascends step by step, order by order, until it arrives at, and is lost in, the vastness of Him who is, without a cause, eternal, and is yet himself the cause of all things else.

Of this ascending scale, what place does man occupy? The angels of light, those spirits of untarnished purity, which are permitted to dwell in the presence of the Almighty, and encircle his throne, hold the first rank in creation. Man stands next to them. "For," says the Psalmist of Israel, "thou has made him a little lower than the angels, and hast crowned him with glory and honor; thou madest him to have dominion over the works of thy hands; thou has put all things under his feet."

Of all animals, man, were he destitute of those higher faculties which are peculiarly his, would be the most helpless. Nature has not protected him against the inclemency of the seasons, by clothing him in a warm coat of hair. It has not endowed him with that activity and speed requisite for pursuit of prey, or escape from an enemy. Destitute of claws, and large strong teeth, he would be entirely defenceless, and must be preyed upon by other animals. While the arrangement of his teeth, and digestive organs, is such that he would be confined for the most part, for food, to roots, nuts, and fruits.

But, the Creator did not leave him thus destitute and helpless. This animal frame is but the frail, temporary residence of the soul, vast in its intellect, and boundless in its moral power. And Oh! with what infinite wisdom has the structure of the body been adapted for the purpose of its creation. Ten thousand nervous threads, as channels of communication, convey the thoughts of the soul to every part, and back to it the impressions of the external word—the stately, upright position—the form of the body, capable of assuming a thousand attitudes—the hand, constructed with infinite skill, enabling man, by reason of its sensitiveness and adaptation to grasping, to perform whatever he will, all show how wonderfully the body is adapted to being the dwelling-place of the soul during its stay on earth. Yet, if it afforded the soul no channel of communication with other kindred beings, save through sight, and touch, and hearing, with which other animals are endowed, how imperfect would be its organization. The eye often reveals much, and sometimes too much, of the secret thoughts. It is

delightful for two congenial spirits thus to hold silent communion, when circumstances forbid other means. They mutually, through stolen glances, read each other's thoughts, though in pale and imperfect characters. The stream of communication is small, and the thirsty spirit is ever dry. Not so when the soul pours forth, in speech, its friendship and love. Thought flows freely, and all the tenderest sympathies of human nature are roused, and throb responsive to the burning word and thrilling accent. The faculty of speech was, therefore, conferred upon man by his All-wise and Good Creator; and it was conferred that he might both enjoy and enlarge his intellectual and moral powers.

This faculty, bestowed upon no animal but man, is one of the striking characteristics which distinguishes him from all others, as a superior being. It depends upon the peculiar organization of the mouth, tongue and lips. Every animal can produce a voice, but man alone can articulate. It is this power of articulation which constitutes the faculty of speech, that is, the power of producing a great number of sounds sufficiently distinct, to be made the means of conveying distinct ideas to the mind. The intelligence of man, perceiving this power of varying sounds, "wove of them the web of language." As the selection of sounds to represent particular ideas must have been arbitrary, we should naturally expect to find, what is actually true, that on the separation of the varieties and tribes of the human family, they being scattered abroad over the earth, would by degrees, as language progressed, differ more and more in their modes of speech, and in the sounds which compose it, so that, in the course of time, the difference would become so great in the languages of the respective tribes, that their common origin would occur only on the closest analogy of their structures and words. Hence, we now have as many languages as tribes.

The second great characteristic which marks man as a superior being, is his endowment of moral power. This is the power which constitutes him a religious being. It is a remarkable fact, that wherever he has been found, whether on continent or isle, enlightened and refined, or dark and savage, he is alike a worshipping being. But the tribes differ widely in the modes and objects of worship. The Indian, in solemn reverence, adores the "Great Spirit"—the God of his native land. The classic Greek and Roman bowed at the shrine of Gods—the creation of their own fancy—while the Christian, in the simple sublimity of faith, kneels at the altar of prayer, and speaks the desires of his heart in fervency to the living God.

The moral faculty impresses upon man his objection to some superior intelligence; and hence we find him everywhere acknowledging this obligation by religious worship of some kind or other.

The question here starts upon us, if there is but one true God, and if the moral faculty admonishes us of religious obligation, how does it happen that men differ so widely in their religious systems and belief? Let it be borne in mind that the moral faculty is a monitor of duty, and not of facts; and hence it only impresses the obligation of religious duty, but does not inform us as to the object of worship. The true system is that of sublime virtue. The true God is sublime in his perfections; and those who worship him must, by his assistance, ap-

proach somewhat at least to his perfection. The human heart, corrupt and full of abominations, found nothing in the worship of a God so pure, congenial with its natural inclinations, and therefore gradually departed from him, while human fancy wove for itself systems better suited to the inclinations of the depraved heart. But, as the tribes were divided far apart, without intercommunication, the systems thus gradually formed might be expected to differ.

The next great office of the moral is, to constitute man a social being; for the same principle which reminds him of obligation to a superior, impresses him with the idea of duty to his fellows, and prompts the noble sentiments of esteem, friendship, and love. These three ornaments of human nature at first formed the links of society. All the good mutually esteem one another—friendship binds those more frequently associated more closely together—the ties of kindred unite individuals yet more strongly, while the golden chain of love binds two hearts in the perpetual and holiest of all ties—wedlock.

The moral power, thus urging man to esteem, to befriend, and to love his fellow-being, (noble attributes of humanity!) inclines him to society, and this inclination becomes strengthened by necessity. After the deluge, the human family accumulated in the neighborhood of the Caucassian mountains, and were held together through the strength of social feelings, until it became necessary to disperse more widely over the earth. Thus we find them going forth in tribes and companies. Having made their new settlements, they are united for common defence against the beasts of prey. A Nimrod, bold and daring of spirit, beards the lion in his den, and strikes the tiger at the moment of his fearful leap. He quickly gathers adherents about him, and his will sways the community. As numbers increase, violence does also, and the strong begin to oppress the weak. The mighty chieftain of the chase, on the grounds of affording protection to his weaker brethren, clothes himself with power, assumes the crown, and a feeble patriarchy is converted into a despotic monarchy. Thus tribe after tribe was erected into firm despotisms. In time, the tribes having been thus changed from their original simplicity of government, and being separated from each other, lost the fraternal feelings which at first characterized them. It was then that "man become the scourge of man." Inflamed by ambition and the love of plunder, monarch warred with monarch, blood flowed plentifully, cities were destroyed, thrones overturned, mighty kingdoms crushed, and vast empires built up from their ruins.

Thus has society advanced from small communities to great cities, from cities to kingdoms, and from kingdoms to empires.

The last great characteristic which distinguishes man as a superior being, is the intellectual power. It is this power which enables man to accomplish the promptings of the moral. Through it he perceives, thinks, concludes; through it he forms and carries out the great plans of his life; controls the lower orders of creation, and compels the elements to do him service.

Endowed with this exalted faculty, man is a being of vast conceptions. Behold the philosopher! he is silent, and you think him cold and joyless of spirit. Ah, how you mistake! He has lifted the cur-

tain which veiled the mysteries of nature, and now, his soul swelling with joy, he silently gazes on the beautiful harmony of her mighty works.

Beside the midnight lamp, in a lonely room, may be seen a solitary individual. Why bends his frail form over that table, while all but himself are wrapt in sleep? Poor, joyless man! Ah! think not so. Perceive you not how the heart throbs at every stroke of the pen which brings him nearer and nearer the result of his calculations? Perceive you not how the eye kindles, how the countenance glows with living light as the vast conceptions of the planetary system crowd upon his delighted soul? He is Galileo, or Newton, or perhaps La Place. Years ago, you beheld the fiery traveler; he shot away with the speed of lightning, and now pursues his course far beyond the realms of light. Where is he? Ask La Place, he'll tell you. When will he return? The astronomer has solved the problem, and, as it were, with prophetic vision, pierces the darkness of the future, beholds this traveler re-enter the bounds of our system, and tells you when this shall be, to the day and the hour!

What has the intellect of man not accomplished? It has revealed the hidden things of nature—calculated the distances and courses of those great orbs which roll in silent grandeur their eternal rounds within our system. It has changed weakness to strength, and lifted man from frailty and helplessness into power, and happiness, and glory. It has builded the cities of the earth, founded her empires and established her institutions. And now, in its exercise, man narrows the ocean to a single leap, and friends familiarly converse though ten thousand miles apart.

Languages, the moral power, and the intellect, seem to me sufficiently strong characteristics to mark man as a superior being and entirely distinct from all other animals. His life is short, but through the records of history he lives throughout the past, and is acquainted with the great thoughts of all the great who have lived before him. And as there are manifestly two natures united in him, the one material, the other essentially spiritual, may we not reasonably suppose the existence of the soul, which is the spiritual part, throughout all time to come? The annihilation of an intelligence so nobly endowed, could not consist with the economy of that Creator, whose works universally proclaim him of infinite wisdom and goodness. But the Bible, glorious book of Divine revelation, places the question beyond all doubt, and bids the trembling soul put away its fears, for death, it teaches, is but the gateway to eternal life.

Man, born to immortality, endowed with the most exalted faculties, finds no home in this world. Pleasure he pursues, but never attains. Earth hath no joys that may satisfy the quenchless thirst of his deathless spirit. Here he is born—here he sorrows—but here he does not abide. A few years, and the vanities of this life are gone. A few friends circling about the grave, consign the mortal frame to its mother earth—but where is the spirit? Let Montgomery answer:

There is a calm for those who weep,
A rest for weary pilgrims found,
And while the mouldering ashes sleep
Low in the ground,
The soul, of origin divine—
God's glorious image freed from clay,
In Heaven's eternal sphere shall shine,
A star of day.
The sun is but a spark of fire,
A transient meteor in the sky—
The soul, immortal as its sire,
Shall never die.

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## ART. IV.—THE PRESIDENT—SUB-TREASURY—TARIFF—SLAVERY.

The following communication from Alexander Hamilton, Esq., to the Editor of the Merchant's Magazine, will be found worthy of the most careful perusal of every American citizen. It is so rare that we meet with an article written in reference to public policy that is not tinctured with party politics, or sectional prejudices, that the appearance of one rising above these considerations, and looking alone to truth and to the general happiness and prosperity of the whole country, imparts a thrill of delight similar to that which we experience when meeting with a much valued friend after many years of separation.

The little sympathy which the authors of such articles receive from all organized parties, is calculated to prevent many of the best minds and best men of the country from presenting their views to the public; this is much to be regretted, for it is only from men whose judgments are not mislead by party politics, and who have courage to declare their honest convictions—irrespective of party discipline—that the people at large can learn the true interest of the country.

Almost every public newspaper in the Union is committed to the service of a party, and it would be as reasonable to expect that one would disparage the title by which he holds his estate, as to suppose that an editor would publish with approbation, anything calling in question the policy of his party. And so fearful are they of giving offence, that they dare not suggest the slightest change or modification, lest they should be suspected of defection. We believe, however, that the present time is more favorable to a liberal discussion of public measures than any that has occurred for many years past; and we trust that the well judging and unprejudiced minds of the country will seize upon the opportunity thus afforded them, to give a better direction to public measures.

WASHINGTON, February 27, 1849.

TO FREEMAN HUNT, ESQ., *Editor of the Merchants' Magazine:*

*My Dear Sir:*—I have endeavored, with some considerable solicitude, to ascertain who are likely to compose the new cabinet; but, such has been the wise discretion of the Presieent elect, that we hear nothing but vague rumors, as ephemeral as they are unreliable. It is admitted by all, even by the knowing, that thus far the General makes a good beginning, and this is appreciated as a satisfactory type of coming events, giving rise to a general opinion, that the gentlemen to be selected will represent important sectional interests, possessing, at the same time, the entire respect of their fellow-citizens, for the liberal and enlightened views they entertain, in relation to the national policy. There seems to be no suspicion that the President will allow himself to be trammelled, or embarrassed, through the influence of any mere party considerations, nor is it imagined he will admit or tolerate the least shadow of dictation, having determined to act on the conviction, that the most prudent course for him to pursue, with regard to his own reputation and convenience, will be to encourage and bring forward commanding talents, avoiding as much as possible, and consistently with good faith, those who have heretofore occupied prominent positions, as advocates of ultra doctrines. It is said to be his fixed purpose to protect his cabinet from the insidious influences of internal rival collisions. In order to guard the measures of the government from assuming any other than a national character, he should rest on the integrity and enlightened patriotism of Congress, entertaining no doubt that there will eventually exist the most perfect harmony between the legislative and executive branches of the government.

As these impressions gain strength and confidence, the best informed especially those most anxious for the success and endurance of our institutions, seem to feel a sanguine hope that the financial and political prospects of the country will continue to improve, honestly believing, under the influence of certain well-devised practical modifications of the Sub-Treasury and the Tariff, that the former may be enabled to operate with greater freedom, and the latter prove as beneficial to the interests of the people and government, as it now is to the government alone, and through the influence of such modifications, secure a more perfect sentiment of union, harmony, and the conservative spirit of American nationality, than now exists.

To repeal either, or both these great national measures, could not fail to create a bitter renewal of the old party strife. Such indiscretion would immediately give rise to a question of principle, feigned or real, in which expediency and truthfulness are forgotten, surrendering place to passion and prejudice, through which the industrial portion of the population, the democratic masses, are most sure, ultimately, to suffer. The friends of the coming administration can have no motive to make any changes, beyond such as are absolutely necessary; such, in fact, as those who have lost favor would, but for a matter of pride, be most willing to concede, as essential ingredients to the perfection of their own measures. There is certainly no more important truth,

in the every day experience of the world, than that constant vacillation in public and private affairs, leads to inevitable mischief; and while acting with this knowledge, familiar to the humblest intellect, ought we not to anticipate that prudential considerations will dictate the adoption of a course of premonitory tolerance. If the Whigs will submit themselves to be judged, by the honest intelligence of the people, they will not only have the satisfaction to merit respect, but they will, by presenting such evidences of moderation and integrity, create in the public mind a high sense of propriety, which must and will exercise a future salutary controlling influence. They will then discover what is very little unerdstood, that while the American people often improvidently and illy bestow their confidence, there still preponderates the great preserving talisman of the nation—its universal good sense—the sober second thought. It is not an uncommon boastful remark, that we are above and entirely independent of foreign opinion; but, with all due deference to such bigotry, I would respectfully suggest, as due to our national importance and moral influence among the mighty political family, that we should cultivate a love of good fellowship, a longing desire to be distinguished for the most scrupulous probity, persevering consistency, and enlarged views of political economy. If such should be our prominent national sentiments, we shall have created a tribunal of public opinion, fully competent to test the relative value of theories, when compared with the established evidences of practical experience. If we may judge by the vicissitudes which attend our legislative councils, the rapid revolutions of political life, and the absolute disregard which has been exhibited for constitutional law and organization, we can easily foresee the prospective necessity for the introduction of some radical change in our legislation. To say that members of Congress do not hold themselves responsible to their constituents, or that they willingly neglect to perform their duties, would be to censure without reason, but that the country has just cause to complain of the waste of valuable time, all will admit, which, when lost, estimated on the dogma of Grecian wisdom, is the most expensive extravagance.

To what end, and for what purpose, should we get rid of the sub-treasury? It has, thus far, with all its faults and trials, done its duty faithfully. The country has passed through an unexpected war, involving an immense expenditure of treasure, without wavering; and with similar soundness in the movements of our monetary affairs, we have with perfect regularity and calmness preserved ourselves through a period of great speculative excitement. In my judgment, had we been deprived of the controlling interference of this power, a wild scene of ruinous extravagance would have been exhibited, which, like the mania of 1839, would have terminated in general and disgraceful bankruptcy. The system has acted conservatively, through the natural force of its inherent power to check expansion. The importation of twenty millions of dollars, the price of our breadstuffs, would have inflated the currency to such an extent, had the banks been at liberty, that, by this time, we should either have failed to perform our contracts, or have returned to Europe double the amount of specie we extracted. The sub-treasury kept down the value of foreign merchandise to specie

prices; and in the ratio of its influence, in regulating our home market, were our merchants enabled, those, at least, who were moderate in their expectations, to make fair and profitable voyages.

Notwithstanding the gold fever of California, while it draws from the Atlantic some of the most valuable of our population, and brings to our shores, in anticipation of large profits, the rich products of foreign industry, we nevertheless see and feel that there is in active operation a restraining and restricting supervision. If the consumption does not meet the supply, the depository becomes plethoric, and in the ratio of its extra collections, restrains the paper issues to the criterion of a limited metalic basis. We either take the goods at a sacrifice, stopping importations, or reshipments must follow on account of their owners. This check is constant and immediate; its accumulations cannot be concealed or disguised; there can be no deception or evasion; and should the banks disregard its salutary admonitions, they would soon find their solvency in imminent danger.

If the head of the treasury should be authorized to check freely on the deposits, to discharge the indebtedness of the government, or to transfer credits, to suit the convenience of the department, the sub-treasury system would be relieved of an important embarrassment; and, if to this should be added the issue of certificates of deposit to the public creditors, or the admission of transferable credits, on the books of the sub-treasuries, every facility would then be afforded, in accommodation of the legitimate business of commerce. In these simple modifications, there would be no material increase in the volume of circulation, while the specie, in deposit with the government, would be more advantageously and conveniently represented; and being so relieved, the substantial objections to the system would be essentially removed.

In this country and in Great Britain, the state of the foreign exchanges has been considered a fair evidence of the condition of the bullion market; but with what propriety this has proved a reliable criterion, we can only judge or form an estimate by the many, and apparently unforseen, repetitions of fiscal panics. This dependence on the current of exchanges has ever proved fallacious. When they are supposed to be favorable, they lead to immediate bank expansions; and when, running counter or adverse, the mercantile public become immediately alarmed, then each individual and monied institution acts on the exclusive principle of self-protection.

The influx into the sub-treasury not only gives timely warning, but materially operates to produce a healthful state. If the importations be excessive, the deposit increases, and the banks, losing their specie, have necessarily, from prudential considerations, to curtail their discounts; and as a consequence of this strictiveness, prices fall, and remittances become limited. Though the rate of the exchanges may decline, through the pressure, still, remittances are made with reference to the stringency.

The Tariff.—If we may judge from the reluctance with which this subject is approached, there is good reason to believe that there exists an important difference of opinion, among the members of both parties, how far it is expedient to interfere with its operations. It is

certain, since the free trade doctrines have been in practice, that the public revenues have increased, and it is equally true, the commerce of the country has been materially expanded. If these are the real signs of prosperity, there can be no cause to complain; and while the foreign exchanges evince a balance of trade in our favor, they would seem to be substantial. In thus stating the case, the apparent evidences are in favor of the tariff of 1846; and yet there can be no doubt, that since it has been in full experiment, many of our most valuable domestic enterprises have become embarrassed. There is also this further fact, in favor of our present experience, that almost every shipment made to the United States, is extremely profitable, especially those from France; and to such an extent has this been realized, that the fear of any change in our policy is the daily subject of solicitude to the official representatives of that country.

In order to be entitled to a wish, on our part, for a continuance of this peculiar and extraordinary state of our foreign commerce, we ought to be satisfied that there exists a perfect reciprocity. It is not enough that those who are immediately engaged in the business of importation, are making successful speculations. We must look further, for the purpose of ascertaining whether the aggregate is beneficial to the whole. The history of Portugal shows that a similar commercial era existed, when large fortunes were amassed, by British merchants, during a period of thirty years, from 1697 to 1726, when upward of $500,000,000 of gold were withdrawn; and in 1754, when it was discovered that the whole amount of specie did not exceed $4,500,000, the celebrated Duke of Pombal perceived the necessity of extending protection, and, as a medium of relief, created mercantile corporations, with manufacturing privileges. Is it not possible that this may be our approximate condition? The immense amount of gold imported in 1846, increased by a large demand for our government stocks, has kept down the exchanges, and for the present sustains this adverse trade. There can be no doubt that every article of American produce is extremely depressed, and compared with the value of 1846, scarcely yields a moiety. If we were to consult the treasury returns, we might be led to believe that our exports were beyond the imports; but, when we reflect that the export invoices are generally made high, on which no duty is paid, and that those of importation are rated low, to avoid the payment of the highest per centage, we must come to the conclusion that the official statistics are little more than vague representations.

But, whether there be any force in these statements or not, one thing is most certain, that the price of money is extravagant, and that most of our valuable manufacturing establishments are prostrate. The cotton, woollen, and iron business is in a most lamentable condition, and in a corresponding manner are our agriculturists, farmers, and planters suffering. In every direction, our operatives want employment, and mining has ceased to be remunerative. These are facts which cannot be questioned. They are matters of general knowledge, such as speak without equivocation, and prove that, whatever may be the flattering theory of free trade, experience will bring us down to practical results.

It would be well to bear in mind the state of commerce, previous to the passage of the act of 1842; because, by so doing, we shall discover our foreign trade to have been precisely the counterpart of that which is now officially esteemed an extraordinary state of prosperity. If Congress and the community would take counsel by the past, the evil day might be avoided; but, if they do not, I venture to predict that we will soon perceive symptoms of distrust.

Notwithstanding the millions which have been expended in the erection of iron works, it is an extraordinary fact that there exists but one unfinished contract for railroad bars, which contract is strictly enforced because of the superior quality of the American manufacture. In excuse for this disregard of our home industry, we have the stale apology that there should be no restriction placed on the consumer; but, when we examine into the practical beauties of this theory, every individual might say that he would not pay taxes, because he required no government. In order fully to comprehend the rights of the community, as independent of the individual, it is but necessary to remark, that the sum paid for a ton of domestic iron, is the aggregate compensation of a great variety of labor. In order to produce this ton, we employ miners of ore and coal, the yield of our own soil, and through the whole progress of completion, American labor and capital are sustained; while, on the other hand, if we neglect this cardinal interest, the joint product of almost every industrial pursuit, we become the patronizers of foreign labor, capital, and enterprise, to the exclusion of our own.

Through this long letter, you will perceive that I hold to no ultra points. Abstractions, in my judgment, very wisely lead to investigation, but, in practice, they never can stand without the support of auxiliary assistance. So with moral and political associations; the doctrines of socialism, universal love, and common property, have no reality as the elements of strength, combination, and prosperity. I am, however, a substantial believer in the effective preservative policy of the sub-treasury; and I would look to the advent of a national paper currency, based on the hypothecation of stocks, as the certain road to ruin.

I will now finish with a suggestion, perhaps as novel as in the onset it will be unpopular; but, being practical and of easy execution, it may merit the most serious consideration. I thus venture to deliver my views for what they are worth, under a full sense of the delicate obligation we all and individually owe to each other and to the country, not to interfere with subjects and controversies purely sectional, unless there exists a reasonable prospect of rendering an efficient service, private or public. It cannot be disguised that the slavery question, to which I allude, has assumed a shape and interest at home and abroad, which calls on every one, associated with the excitement, maturely to weigh and deliberate, not only the motive with which he acts, but what is to be the probable result. To take any other view of this peculiarly embarrassing matter, would evince a predetermined disposition to seek the end, heedless of the consequences. It certainly does not evince any regard for the true principles of philanthrophy, to press forward an event, either through the desire to indulge

the kindest feelings, or to advance some plausible political assumption, where the issue may lead to the most indescribable atrocities; and to such an extent may this mischief propel itself, that those who are now instrumental in bringing it about, may, in turn, become the avengers of scenes of the most savage barbarity. I will press this phase of the subject no further, leaving to the good common sense of those who feel a conservative disposition to measure and reflect on the whole matter with humanity, and in a spirit of mutual and reciprocal fellowship.

It is probable that those who are most urgent in precipitating abolition, would risk throwing the country into a civil, and with its inevitable attendant, a servile war, to gratify a morbid propensity to interfere with interests which do not immediately, or, at least, do not directly affect them, and of the nost insidious and dangerous of these disturbing elements we may rank the recent political crusade, the sudden and extraordinary revelation of the obligatory duties of a sectional free soil patriotism. I have been through the south, and visited the Island of Cuba, observing with solicitude the state and condition of the colored population, and in addition to these opportunities for inquiry, I have sought, with much assiduity, every means of acquiring information, as to the effect and influence of emancipation in the West Indies. I may be mistaken; I may have formed a wrong estimate; but my uniform conviction has been, that a state of dependence and reliance on the forecast and providence of white supervision is essential and necessary to the comfort of the blacks. I know there are exceptions to this general conclusion; but they are like the dark spots on the sun, they do not invalidate the material truth. There are, however, exceptional practices among the blacks, but even these are not universal, which might and ought to be restrained, but which can only be eradicated through the superior social influence of their more fortunate neighbors.

In the West Indies, where emancipation has been proclaimed with the loud and clarion voice of liberty, those who work are most indifferently compensated, irregularly employed, their families entirely dependent on the pittant remuneration received for their industry; while those who seek service, but to satisfy the immediate wants of nature, live in a state of the most wretched indigence. To such an extent was the universality of indolence and improvidence in the favored and wealthy island of Jamaica, that it become necessary to import, at the public expense, as apprenticed labor, the re-captured negroes on the coast of Africa, and even this extraordinary means of acquiring agricultural substitutes has proved a complete failure. The island of Jamaica, like almost every other similarly free, has fallen from the highest state of prosperity into the most serious embarrassments. What is the situation of the anomalous republic of Saint Domingo, but a spurious experiment at civilization. The government is a despotism, and the people nothing better than the vassals of power; and the experiment here, of civil liberty, was ushered in through the most diabolical exhibitions of fiendish atrocity. If there was a crime unknown to revolutionary France, St. Domingo could have furnished the illustration. Men, women and children were

abused, polluted, and sacrificed; and there are those who sought the United States, in such wretchedness, as an asylum, who cannot recall to their recollections the dangers they passed without shedding a sad and melancholy tear on the prospects of those who may be similarly exposed.

As an aggregate, the southern slaves are in a much more contented state, subject to fewer wants, solicitudes, and privations, than populations claiming to be civilized. The serf subjects of northern Europe are sold with the soil, bound with it, through curbs and difficulties they have neither the knowledge or presentiment to appreciate. If, for argument, it should be admitted that slavery were abolished, and this without reproducing the calamitous results which have attended corresponding experiments, is it not morally certain that the most enterprising and capable would seek employment where the tariff of labor is best understood, and then what would be the result? Would it not terminate in producing a perfect derangement of the remunerative resources of well regulated industry? To the southern emigrant it would be ruinous; and to those who are left behind, having lost an owners' care and their natural dependence, the change would not be less disastrous. The Utopianism of the prevailing philanthropy would soon find a novel field of distress for their sympathy, when political ambition would rail against those who have produced the issues of abolition as the worst enemies of the country.

Let us now examine this subject in another phase. Let us see whether there may not be some pecuniary and political considerations worthy the souud, deliberate attention of statesmen and men of business. Is it not true, that to the confederation we are indebted for the independent power and influence we possess? and if so, has not this desirable and enviable state been produced through the combined industry, productions, and enterprise of each and every section of the United States? There are none who will dispute these positions, while there may be some who will doubt that the great substratum of our prosperity, political, commercial, *agricultural*, and manufacturing is essentially the fruit of southern climes and from southern labor. If it had not been for the devoted patriotism with which the Union has been held together, what would have become of the north, deprived of the rich resources of the south? It was worth a high bid from Great Britain to effect a severance of the confederation, and but for her short-sighted policy she would have extended an insidious liberality to the southern planter, instead of indulgence to the eastern States during the last war. To the wealth we have accumulated from the European consumption of cotton, rice, and tobacco, do we owe our general prosperity; and but for these great staple commodities, our power over the wants of the transatlantic labor would dwindle down to a mere rivalry. Take away from your control the incidental rule you possess over the industrial pursuits of Great Britain, and her free trade doctrines would be limited to partial favoritism.

I do not mean to infer that our connection is an exclusively one-sided affair. On the contrary, I know that we are reciprocally and intimately dependent on each other, that we could not separate without mutual injury, nor could we exist in friendly intercourse with

separate governments. The issue of such an effort would be fatal, and after a long, painful, protracted collision, we might come together without sympathy, with the loss of character, and our best interests prostrate.

In this view of this most serious matter, the proposition I now make would, I foresee, lead to those gradual changes and ameliorations which we all must desire, and with mutual compromise and concession should endeavor to produce. In several sections of the country, emancipation is anxiously desired; and, but for the interference of rude interposition, it would have been long since effected. It would be encouraged in those portions of the country where white labor could be safely and advantageously introduced. The north should look well to the result; there is a powerful difficulty to be encountered; the intelligent philanthropist of the south could feel justified in throwing black labor on its own resources, in collision and in connection with the more skilful and provident industry of the white. The colonization society, in despite of its best efforts, and the liberal patronage of the public, meriting the respect of the highest feelings of humanity, is, nevertheless, impotent, as a grand source of relief, while, through the appliances of its organization, it may be enabled to render the most beneficial services; but of this there may be some doubt, as it may be apprehended that Liberia is the beau ideal of the proper scene of action.

Based on their expectations of rendering a great national service in the settlement of free blacks, let Congress establish a territorial government on the Pacific, located in some genial climate, where the soil is easily cultivated, limiting and restraining the emigrant population to the locality selected; we should then have an accessible and practical, an attractive and convenient theatre for colonization. The enterprise of the country bids fair to afford a rapid and easy intercommunication, which would convey thousands at less expense and danger than hundreds now cost. It is needless to talk of the growing prosperity of Liberia, the civilizing influence on the native African. It is but a drop of comfort to our necessities; and addicted to idleness and improvidence, the African brood, in its native aboriginal home, is unsusceptible of exertion.*

To the Pacific emigration would flock. Those who parted from the

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* Although we approve of the suggestion respecting the colonization of the free blacks on this continent, yet we are of the opinion that no territory embraced within our present limits, can be permanently appropriated to that purpose; it is all susceptible of being inhabited by the white race, and no human law could protect the negroes in its possession against the laws of nature. Their home is under the burning sun of the tropics—establish them there in moderately fair circumstances, and the white race will no longer encroach upon them. Their establishment in that region, as a civilized people, is necessary to the full and complete development of the resources of the entire continent, and this event is not less certain in our opinion than the laws of nature. When the proper time arrives we shall doubtless be able to make satisfactory arrangements with some of the governments of Central America for their migration thither. Indeed we are not aware that there is now any inhibition to the emigration of blacks to that region, and we believe that they are entitled to all the privileges and immunities of the white race, both political and social.—[EDITORS.

land of their nativity would not feel that they were breaking the strong ties of relationship, nor the hope, the pleasurable hope, of reunion on the territorial soil of the country of their adoption. In thus raising a colony of our colored population on our western shores, we should soon find that the expense of the establishment would be fully remunerated; while, in so doing, we could in sound and wise policy declare Liberia free, abandoning it to the fate consequent on its independence. We require no foreign settlements; they always produce trouble; and, independent of their extravagance, they assume certain national positions tending to create embarrassments with foreign powers.

Respectfully yours,

ALEXANDER HAMILTON.

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## ART. V.—SCOTTISH AGRICULTURE.

BY G. B. DAVIDSON, OF ILLINOIS.

The design of the writer—the land, how owned—how divided and leased—average rent per acre—expenses over and above rent—changing from small to large farms tends to reduce the price of labor—social condition of agricultural laborers—mode of farming—rotation of crops—kind of crops—time of ploughing—cleansing and manuring.

In giving an outline of the Scottish system of farming, our object is not to lay down a plan for the farmers of the Mississippi Valley—we do not propose to call upon the American to imitate the Scotch agriculturalist. Our object is to invite the American farmer, and American citizens generally, to investigate and apprehend the causes why land is of more value in Scotland than it is in Missouri, or any of the western States; and having discovered the reason, to inquire whether the means are attainable, whereby cultivated land in this country can be enhanced to the value of land in Great Britain. In what we are to submit, therefore, for the consideration of the readers of the "Western Journal," we shall first show how the land holders dispose of the land, or what relation the people generally, sustain to the soil; and secondly, the mode of culture; observing, in what we have to say, the utmost possible regard to brevity.

The land in Scotland is not owned by the farmer; it is all in the hands of what is called the aristocracy—or the *gentlemen* and *noblemen*—known as lairds, dukes, earls, lords, &c., &c. Some own only small quantities, and some have incomes of from fifty to one hundred thousand pounds per annum. These landlords divide their estates into farms of from twenty to five hundred acres, and lease for a term of years, (generally nineteen,) to the highest bidder. This system of leasing is admirably calculated to raise the rent to the very highest

point. The farms to be leased are advertised for some time previous to the day appointed to receive offers, when the factors, and sometimes the landlords also, receive in great secrecy the propositions of the several applicants. No one knows what another bids; consequently, the fear of being unsuccessful, prompts the applicant to make a high offer; and a few short years not unfrequently reveals the miserable effects of the system—the successful competitor, on these occasions, often ending in bankruptcy. The rent, of course, varies, according to the quality of the soil, and other internal circumstances; but we have yet to learn of land being rented at less than five dollars per acre per annum. And we wish the American farmer could see the barren moors and bleak mountain leases, for every acre of which five dollars is annually paid. Good land near a city, will readily rent for from fifteen to twenty-five dollars per acre yearly; and some patches, for horticultural purposes, will even rent as high as one hundred dollars. We should suppose a fair average estimate of the yearly rent of each acre of cultivated land in Scotland, to be about fifteen dollars. This is exclusive of land in, and attached to cities, which, of course, is much more valuable.

In addition to the amount per acre, the tenant has to pay from eight to twelve per cent on the capital expended on houses, also, on all fencing done by the landlord; and moreover, if such property depreciate in value, either by accident or natural decay, the tenant is bound, at the end of his lease, to make good the deficiency to the landlord.

Formerly, say in the days of our old grandmothers, a great part of the land in Scotland was divided and sub-divided into small 'crofts,' of a few acres; consequently, there was very little hiring for agricultural purposes, except by the landlords themselves, and their factors. But of late years the landlords have adopted an entirely different policy. They have almost done away with the numerous small farms or *crofts*, and as much as possible, laid out their estates into farms of large size; so that a man must be able to command considerable capital before he can become a tenant; in order to procure cattle and things necessary to carry on his business. The up-rooting of those small farms, as a natural consequence, threw a great number of people out of homes, and also out of employment. And where could they be found? For the former, they must go to the village; and for the latter, they must look to the landlord's tenant, who must necessarily employ help in proportion to the size of the farm he occupies. The number required in this way, however, is far short of the supply, and consequently, receive but little remuneration. The farmer's expenses, in this particular, is but a mere item. The very best hands can be had at from ten to twelve pounds sterling, a year; and frequently not more than eight and nine is paid. Females can be employed for much less, say at an average of three pounds ten shillings, a year; and for many purposes, such as hoeing, making hay, &c., they are considered almost equal to a man.

In connection with this part of the subject, we may add, that the social condition of the agricultural laborers is far from enviable. There is no time for amusement or mental culture; but toil on from day to day, from week to week, and from year to year. In fact, as a

general thing, the farmer, in his own sphere, is more of a despot than the landlord. On many farms, the servants are not allowed to enter the house in which the farmer resides. They live in what is called a "*bothey*," a small place, prepared for the purpose; and receive as board seventeen and a half pounds oatmeal per week, and one pint of milk per day. This is the allowance for a man—women and boys one-fourth less.

From the preceding remarks, the reader will be able to form a pretty correct estimate of the annual expenses of the Scotch farmer; and no doubt many will ask, how is he able to pay? At any rate, they may suppose that, after paying such a high rent, he might be allowed to farm, and dispose of his produce according to his own notion. But such is not the case. The landlords have made certain regulations, and procured the enactment of certain laws, restricting the sphere of the farmer's operations to certain modes, and within certain limits. In some instances neither hay, straw, turnips nor fodder of any description, is allowed to be removed from the farm which yielded it; and in no case are such articles allowed to be removed from one landlord's estate to another, unless manure to a corresponding amount is purchased, and applied to the farm from which such articles are removed. Besides, the farmer must only sow a limited number of crops in a piece of ground, the object being to prevent the tenant, towards the end of his lease, from exhausting the soil, by neglecting to manure and excess of cropping—a most salutary provision.

Let us now attend a little to the particular mode of farming—a mode, it will be observed, which not only enables the occupant of a farm to pay a heavy rent, but by which the land is kept in good health and condition, and not suffered to depreciate in value, or fail in productiveness.

Farms are divided into five, six, or seven equal divisions, called shifts, according to the quality of the land—a farm of rich soil being divided into five only, while one of poor soil is divided into seven. The reason is, that the rich soil can stand more cropping, while the poor soil requires more time to rest in meadow, or what, in Scotland, is called "lea;" the former having but one year in five, the latter three years in seven. By noticing the rotation of crops, this will appear more obvious. A farm of five shifts has one shift in meadow, one in green crop, and three in small grain, wheat, oats, barley, &c. A farm of six shifts, has also three shifts in grain, and one in green crop, but *two* shifts in meadow; while the farm of seven shifts has still the same number of shifts under crop, but *three* shifts in meadow. The order of farming is to plough up a shift of meadow every year; consequently, on a farm of five shifts, the meadow is ploughed up when a year old; and where there are six shifts, it is ploughed up when two years, and where seven shifts, when three years old.

The first business which engages the farmer, after harvest is finished, is to plough his meadow, so that the winter frosts may act upon the mould. Experience has proved that ploughing meadow, before the winter set in, not only uniformly produces a more abundant crop, but from ten days to two weeks earlier; which is a matter of no small importance in that country. Where land is of an inferior quality, mea-

dow is generally manured previous to ploughing; but, where the soil is rich, it is not necessary to manure meadow, except for a wheat crop. This, however, is seldom the case, as wheat is generally the last crop when the land is put into meadow. Of course, there are exceptions to this rule, as there are many places where the soil is too poor to produce wheat. Oats is generally the first crop after meadow. The second is partly oats, partly rye, partly peas and beans, and partly barley, according to the notion of the farmer. Some may only sow one or two of those articles, and some will sow a little of every one. If barley should be decided on as the second year's crop, the land must first be well manured; otherwise, the crop would not be worth harvesting. We may add, that the land is ploughed about two inches deeper for the second crop than for the first.

When two crops of grain are thus taken, the land must undergo a thorough cleaning and manuring; and, when this is done, nothing but a green crop, as it is called, can be raised. Green crop consists of potatoes, turnips, and beans, if planted in drills, so as to admit of hoeing. We shall describe, particularly, the process of cleaning and manuring, as it is the most important of Scottish agriculture.

The land, as we have said, bears two grain crops after being broke up out of meadow. The piece of ground to be cleaned is then ploughed as soon as convenient after harvest. It is ploughed very deep, from ten to twelve inches; but, where land has a cold, unproductive bottom, a subsoil plough is used, in which case, the top furrow is not more than six or seven inches deep. In this state the ground remains till spring, when it is again ploughed cross-ways, well harrowed, and the weeds all gathered off. This done, it is once more ploughed and harrawed; and, if any weeds should remain, they are again gathered off. If any clods should remain after this process, the ground is rolled with a heavy stone roller, till no clod is left unbroken.* It is next formed into drills of about thirty inches wide. In the hollow thus formed between the drills the manure is deposited; and, if the crop is to be potatoes, the seed potatoes are placed on the top of the manure, and then covered over with earth.

This is done by splitting the drills first formed, and forming the drills right over the manure. If turnips is to be the crop, the manure is covered in the same manner—the seed is then sown on the top of the drill with a machine made on purpose; consisting of two light wooden rollers, the one for leveling the top of the drill, the other for closing the groove made by the cutters for the reception of the seed. Nothing more is necessary till the plants come up, when the ground is harrowed between the drills, with a harrow made on purposs, called a drill harrow, which uproots every thing coming in its way. After harrowing, hoeing commences; the superabundant plants are all cut out; not a particle of any growth is overlooked; every weed and blade of grass is cut down. This process is repeated two or three times, as the case may require; when a little before harvest, the turnip operations are finished by furrowing up the earth to the roots. This last process, however, is not necessary where land is dry; but

*Meadow is ploughed six inches deep.

in wet land it is indispensable. The Scotch farmer has more expense, more labor, and more trouble every way, to raise turnips, than any other crop he puts in the ground. This, then, we may call the *third* crop after meadow, and if the farmer should not desire such a crop, or only part of a shift in such a crop, the remainder of the shift must be fallowed.

A farmer who raises wheat, generally sows it after green crop; the ground being well mauured and free of weeds. As soon as the potatoe crop is dug up, the land is ploughed, and the fall wheat sown. If more land is required for wheat than the patch occupied with potatoes, the turnips are removed and put in pits for winter use. What is not sown in this way, of the green crop shift, and in places where no wheat is raised, is sown in the spring with barley or oats, as the case may be. This is the *fourth* and last crop after meadow. Grass and clover are now sown, and the following year it rests from the plough.

Such is the order of rotation sacred to the Scottish agriculturalist. In our next, we shall notice the various kinds of manure in use—the price, preparation and application; together with a few remarks on stock raising, &c., &c.

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## AGRICULTURAL AND HORTICULTURAL DEPARTMENT.

### AGRICULTURAL CHEMISTRY.

The following is the eleventh number of a series of exeellent articles on agricultural chemistry, which have appeared in the American Agriculturalist, over the name of J. M'Kinstry, of Greenport, Columbia county, N. Y. The subjects treated in this number are, doubtless, familiar to all who have made themselves acquainted with Liebeg, Johnson, and others; but as we imagine that many of our readers have hitherto taken little interest in agricultural chemistry, we publish the article with a hope that it may be the means of calling their attontion to one of the most pleasing departments of natural science. We have designed writing a series of articles on this subject, but have hitherto been deterred from doing so by the little interest which the farmers of the west seem to take in every thing connected with their pursuit, except that which relates directly to the labor required to produce an article, and the price which it will bring when made ready for market. We are fully aware that so long as the rich virgin soil of the west continues to produce a redundancy of all the marketable

staples, it is useless to talk with farmers about the improvement of their soil, or their system of agriculture. But, still we might reasonably suppose that they would not the less delight in the science of agricultural chemistry and botany, as sources of mental enjoyment.

Mr. McKinstry has treated the subject throughout in a style so plain and familiar, that a child may comprehend it; and we are persuaded that his essays will be the means of exciting a more general interest in a subject not less delightful than profitable.—[EDITORS.

In describing the various parts belonging to plants, it is essential, in order to obtain an easy and perfect comprehension of the subject, to have the attention directed to some particular member of the great vegetable family, and after becoming well acquainted with that, you can easily apply the description or character to any other, as there is a remarkable correspondence between them all. In the largest plants, we may expect to find the different organs most distinctly developed. I will, therefore, select a *forest tree* as the most fit embodiment of those organs common to nearly all vegetables. In examining a tree, three parts at once present themselves for investigation, namely, the root, the trunk, and the leaf.

1. *The Root.*—The office of this is to give the tree a firm support in the soil, to extract nutriment for its supply, and to return to the earth such matter as has been separated from the nutritive part of the food. Roots absorb liquids by means of the fine, spongy texture of their extremities, which act as mouths, and imbibe the moisture that surrounds them. I say they absorb *liquids*, for we have no proof that solid matter, although reduced to the finest powder, can gain admittance, nor that gases can enter except when combined with liquids. But all liquids are not admitted, for the root seems to possess a discriminating power, which enables it to reject such aliment as would be injurious or devoid of nourishment; just as animals, by their sense of taste and smell, are the roots enabled to distinguish wholesome and unwholesome food. There are, I admit, exceptions to this statement, for roots will imbibe brine and many other liquid substances, not congenial to the nature of plants, just as an animal may be made to swallow arsenic by mixing it with its food; but this no more proves that the root has no discriminating power, (as some contend,) than the fact that animals may be made to eat poison proves them to be without taste or smell. As brine and other poisonous solutions which roots have been made to absorb, are not common to the soil where they grow, it was not necessary that nature should endow them with the power of rejecting such substances; for she is a good economist, and does not furnish either plants or animals with such faculties as are not of general use. We cannot, in the present state of science, define the nature of this selecting power which roots possess, but numerous experiments have proved its existence.

I mentioned that the root possesses another power—that of returning to the soil such matter as is not required by the plant. This is called the *excretory power*. Some writers on this subject deny its existence, while others not only contend that roots have this power,

but also assert that the matter which they return to the soil is detrimental to the succeeding crop, providing it be of the same kind, though not injurious to any other kind of plant. This theory was evidently formed to explain the reason why the same kind of produce does not thrive when repeated for a succession of years, or in other words, to account for the advantages of rotation. But, while we admit that the roots of plants have an excretory power, I do not think we have any good reason for believing that the matter excreted has any influence on the succeeding crop. I will explain the advantages of rotation in a subsequent letter, and, I trust, on more philosophical principles than any contained in the above hypothesis.

2. *The Trunk, or Stem.*—We will now direct our attention to the stem, or trunk. The several parts belonging to this, with which you are familiar, are the *bark*, the *wood*, and the *pith*. The bark, or outer covering, may be easily separated into two portions—the outer called the *epidermis*, the inner, lying next to the wood, the *liber*. The sap, or juice, in its descent, flows through the liber, as will be presently described. The woody part of the trunk is usually found to consist of two portions, differing in appearance; the inner portion is called the *heart*, and is commonly of a brownish color; the outer, enclosing this, is called the sap wood, or *alburnum*. The pith is of a spongy texture, sometimes occupying a considerable space in the centre, as in the elder, but more frequently small, as in the oak, maple, &c.

You may have observed in the ends of logs sawed transversely small white lines, running from the centre to the circumference, or from the pith to the bark, like spokes in a wheel. These are called *medullary rays*. They are composed of a similar substance as the pith, and seem to form a medium of communication between the pith and bark, though for what purpose is not known. Although these medullary rays appear like mere lines running across the end, they in reality extend through the whole length of the trunk, dividing both heart and sap wood into distinct sections.

The parts, or divisions of the trunk, above described, are such as are apparent without minute observation; but a closer inspection discloses small cells, or tubes, extending lengthwise through the trunk, and arranged in groups, or bundles. Through these channels the sap flows, passing in its ascent through the tubes of the alburnum, and in its descent through those of the liber and bark. In that portion of the trunk called the heart, the cells have become mostly filled and closed with solid matter, so that but little juice can flow through them. The heart, therefore, is the more firm and solid portion, and on that account the more valuable for mechanical purposes, where strength and durability are required. In all ex-tropical trees, the palm family excepted, a new layer of wood is formed every year next to the bark, which forms a ring around the trunk, easily recognized in most trees, when cut or sawed across; their age may be readily ascertained by counting these rings, or layers.

3. *The Leaves.*—These are very important organs, as they prepare the juice for the office it performs in forming new wood, and thus promoting the growth of the tree. Their office, in this respect, may

be compared to that of the lungs of animals, for the lungs in like manner prepare the blood for its destined purpose.

The leaf is connected both with the wood and the bark of the twig to which it is attached; its fibres communicating with the woody part of its stem, while the green part of the leaf may be considered as an expansion of the bark. The tubes, or cells, which I have described as extending through the alburnum and liber, pass into the leaf and diffuse themselves through its substance. Now there are two sets or layers of these vessels, the one spread along the upper, the other along the under surface of the leaf. Those along the upper surface come from, and connect with, the wood or alburnum, and those along the lower surface connect in like manner with the vessels belonging to the bark or liber. The vessels, running through the leaf, communicate with the air by means of innumerable pores, which permit the escape of vapor, or admit the entrance of carbonic acid, as the case may require. It is supposed, (I know not on what authority,) that the office of the pores on the upper surface is to allow vapor to escape, while the absorption of carbonic acid, (and perhaps other gases,) is performed by the pores of the lower surface.

*The Course of the Sap.*—The juice, when first absorbed by the roots, is unfit for the purpose of nutrition. Its upward passage, as I have before said, is through the tubes of the sap wood, and these tubes are connected with those passing into the leaf. The sap, in its ascent, is slightly changed, though not materially, until it reaches the leaf, when it is exposed to the action of light and air, and reduced in quantity by the evaporation of a part of the water it contained. It is made thicker and somewhat mucilaginous or gummy, by parting with a portion of its water. Its chemical character is also changed by the action of the atmosphere, as well as by that of light; carbonic acid is drawn from the air, and it returns through the liber, carrying with it a large portion of this gas. Now, in what manner the carbon is separated, or how it is that those chemical changes are performed, by which the materials contained in the juice are converted into wood, fruit, or seed, I cannot inform you. Some may satisfy themselves by saying these changes are produced by a *living principle* in vegetables, but this explanation is far from being satisfactory, and leaves us in doubt and darkness as to the nature of this *principle*, and the manner in which it acts. But, what causes the motion of the juice? Why does it rise contrary to the force of gravity? This question concerning the motion of juices in vegetables, like that of the circulation of blood in animals, has given rise to much speculation, and to many theories. One method of explaining the ascent of sap is, by supposing it to be the result of capillary attraction; another, and the one adopted by Liebig, (See American Agriculturist, vol. vii, p. 276,) is that the evaporation from the surface of the leaves produces a vacuum, (an empty space,) in the upper part of the tubes, which causes the fluid to rush in from below, on a principle similar to the one by which water is forced upward in a pump; others again have resorted to the *vital principle*, (a term hard to define,) but there are weighty objections to all these theories. The one adopted by Johnston appears more satisfactory, although it must be admitted that

this rather *illustrates* than *explains* the fact—just as the falling of an apple illustrates without explaining the force of gravity. It is as follows:—

Take a metallic tube open at both ends; over one end tie a piece of bladder, and into the other pour some water saturated with sugar, and immerse the lower end (that over which the bladder is tied,) in some pure water. The water will penetrate the bladder, rise in the tube, and run out at the top, and continue running out until the water within, and that without the tube, contain nearly the same proportions of sugar. Now sugar is a common ingredient in the juices of plants, and the above experiment may be made with several other substances which are found in vegetable juices. Is it not, then, highly probable that those liquids which the roots of plants imbibe, are drawn up through their small tubes on this principle? Neither capillary attraction, nor the production of a vacuum by evaporation, nor the indescribable vital-principle hypothesis, will account for the ascent of the water in the tube in the above experiment. Yet, while we admit that the chemical force by which the water is made to ascend in the tube is the principal one in causing the ascent of the sap in trees, I do not know that there is anything unreasonable in supposing that it may be aided in plants by capillary attraction, and also by evaporation from the leaves. This indeed seems quite probable when we consider that water can only be made to rise a few feet in our metallic tube, while in trees it is sometimes drawn upward of a hundred feet or more.

In my next letter, I will describe some of the most important of the compounds belonging to vegetables. J. McKINSTRY.

*Greenport, Columbia Co., N. Y., Feb. 1st,* 1849.

## HYBRIDIZATION AND CROSS FECUNDATION OF PLANTS.

FROM THE AMERICAN AGRICULTURALIST.

Hybridization, strictly speaking, is the art or act of obtaining an offspring or progeny between two different species of animals or plants; and *cross fecundation*, or *cross breeding*, is the production of a progeny or race between varieties of the species. It was maintained by Buffon, Hunter, and other naturalists of the last century, and is yet assumed by many scientific men of the present day, that the hybrid offspring or progeny of two distinct species of animals or plants is incapable of begetting or reproducing its kind; thus making hybridity the test of specific character. From this we may infer, that the progeny of hybrid plants cannot produce seeds; but that produced by cross fecundation may be regarded as fertile.

The observations and experience of practical gardeners and florists

would seem to justify the following maxims, as affording some guide to the production of new varieties or races:

1. The existence of sexes in plants is now universally acknowledged as occurring in the same flower—in separate flowers on the same plant or tree—as well as in those of trees distinct from one another.

2. Plants nearly related, that is, closely similar in the structure of their several parts, are those only which will immediately impregnate with each other; but it is impossible, at present, to say what families of plants may or may not be brought into fertile union through intermediate crosses. Not long ago, the azalea and rhododendron were thought to be incapable of such union; but this opinion is now exploded; for the Pontic rhododendron, (*R. ponticum*,) has been fecundated with the pollen of the Chinese azalea, (*A. sinensis*,) and the progeny between that evergreen and the last named deciduous-leaved shrub, is the previously unknown phenomenon, a yellow rhododendron. In like manner, the brassicas, (cabbages, turnips, &c.,) mix freely with brassicas in all their gradations, as well as the cucurbitaceæ (melons, pumpkins, gourds, &c.) There are some exceptions, however, to this rule; for the beautiful pelargonium and the scarlet geranium, though nearly allied, according to the classification of modern botanists, have not, hitherto, been able to mix. Again, the raspberry and strawberry are regarded as first cousins; yet, after several attempts, they have not hybridized. The gooseberry and currant, too, are nearly related; still their alliance seems invincible, though tried by skilful hands.

3. The color of the future blossoms, (not of those first hybridized,) seems to be most influenced, though not invariably, by the male plant, if its seeds and flowers are darker than those of the female. Mr. Knight found, that when the pollen of a colored-blossomed pea was introduced into a white one, the whole of the future seeds were colored. But, when the pollen of a white blossom was introduced to the stigma of a colored blossom, the whole of the future seeds were not white. Captain Thurtell, from lengthened observation and experiment, also informs us, that he has always found the color and spot of the petals of the pelargonium to be more influenced by the male than by the female plant. On the contrary, however, he observed that the form of the petals follows most closely that of the male plant.

4. Large stature and robustness of habit, according to Mr. Knight, are transmitted to the progeny by either of the parent plants. Therefore, it does not absolutely matter, for obtaining this characteristic, whether the plant, male or female, be large; but he generally found that the most robust female plant produced the finest result. When a good fruit or culinary vegetable is wanted, he recommends that the largest seed from the finest fruit or plant, that has ripened earliest, and most perfectly, should always be selected. In stone fruits, if two kernels are in one stone, these give birth to inferior plants. The florists of the present day, however, are opposed to Mr. Knight in their practice, as regards the hybridization or cross fecundation of ornamental flowers; for they recommend the weakest plants, and those that germinate last, where chastity of form and beautiful marking are

required, to be taken the greatest care of, as they are sure to produce the most valuable flowers.

*Mode of Obtaining Varieties.*—The most successful mode of obtaining good and very distinct varieties, is to employ the pollen of a male flower, grown on another plant, from a distance, and not that bearing the female, or that in which the fecundation is to take place. When the plants are in flower, carefully extract with a pair of sharp pointed scissors the anthers, if any, from the female flower from which you intend to produce seed, and also destroy all male flowers, or those having anthers, of the same species that are in the immediate vicinity before they arrive at maturity, or your attempts will be of no avail; for nature will have performed her part, and instead of a hybrid, you will have a natural progeny. In order further to avoid previous and undesired impregnation, the female flower should be inclosed in a case covered with gauze, and thus continued until the process of hybridization is complete, to exclude insects, and the effects produced by strong currents of air before the desired pollen is ripe. Another effectual mode of preventing undesired impregnation, is bringing the female plant into flower a little earlier than its congeners, and removing the anthers as directed above. For the stigma will remain vigorous, if unimpregnated, for several days.

After extracting the anthers from the flower you wish to bear seeds, carefully watch the progress of the stigma, and as soon as you find it in a condition to receive the pollen, select the matured anthers from a distance, and bring them in gentle contact with the stigma, to which a sufficient quantity of pollen will adhere. If a double flower should chance to have a fertile anther or two, these should be employed for fertilization, as the flowers of their progeny will almost be sure to be double. Although the fecundity of all the seeds in one seed vessel may be secured by applying pollen only to one style, even where there are several, yet the quantity of pollen is by no means a matter of indifference. Koelreuter found that from fifty to sixty globules of pollen were required to complete the impregnation of one flower of Hybiscus siriacus; but in Mirabilis jalapa, and M. longifolio, two or three globules were enough; and, in case of pelargoniums, Captain Thurtell says two or three globules are certainly sufficient.

In the course of the process, the seed vessel is not altered in appearance, by impregnation, from that of another plant; therefore, no hasty conclusion of failure is justified by that want of change. It is easy to discern, however, whether the fecundation has been effected; for, when this is the case, the stigmas soon wither. The stigmas which have not received the pollen, remain for a long time vigorous and green.

M. Haquin, a distinguished horticulturist at Liege, has impregnated flowers of the azalea with pollen kept six weeks; and camellias with pollen kept sixty-five days. He gathers the stamens just before the opening of the anthers, wraps them in writing paper, places them in a warm room for a day, collects the pollen they emit, and preserves it in sheet lead, in a cool dry place. Mr. Jackson, of Cross-Lane Nursery, near Bedale, states that he found the pollen of Rhododendron

smithii tigrinum to retain its fertilizing power even for twelve months. This property of pollen was verified by experiment, in Persia, by the elder Michaux, as early as the year 1782, in observing that the male flowers of the date, (*Phœnix dactylifera,*) will keep during the year, and yet impregnate the female. D. J. B.

*New York, Feb. 3d,* 1849.

## WIRE FENCES.

Among the many improvements in agricultural economy, there are few that promise results of more general interest than wire fencing. They appear to be growing into favor in almost every part of the country, and bid fair to supersede wood and live fences in every part of the country where timber is not very abundant. Should this mode of enclosure be generally adopted, it will open a new demand for iron that will be equal, perhaps, to all others in point of quantity. We copy the following article, describing the size, weight, and cost of wire from the American Agriculturalist:

Since the publication of Mr. Peters' article on wire fences in our January number, numerous inquiries have been made relative to the size, weight, and cost of wire, where it may be had, &c. &c. For the benefit of those who are interested in this subject, we have taken special pains to construct the following table, which is based on reliable facts, obtained from several importers and wire dealers of this city:

| Class of wire. | Diameter in hundredths of an inch. | Weight per lineal rod. | Weight per lineal mile. | Retail prices per pound. |
|---|---|---|---|---|
| No. 1 | 0.32 | 4 lbs. 2 oz. | 1321 lbs. | $0 09 cts. |
| 2 | 0.30 | 3 " 10 " | 1166 " | 0 09 " |
| 3 | 0.27 | 2 " 15 " | 944 " | 0 09 " |
| 4 | 0.25 | 2 " 8 " | 809 " | 0 09 " |
| 5 | 0.24 | 2 " 5 " | 746 " | 0 09 " |
| 6 | 0.22 | 1 " 15 " | 627 " | 0 09 " |
| 7 | 0.20 | 1 " 9 " | 518 " | 0 10 " |
| 8 | 0.18 | 1 " 4 " | 419 " | 0 10 " |
| 9 | 0.16 | 1 " 0 " | 331 " | 0 10 " |
| 10 | 0.15 | 0 " 14 " | 291 " | 0 11 " |
| 11 | 0.13 | 0 " 10 " | 219 " | 0 11 " |
| 12 | 0.12 | 0 " 9 " | 186 " | 0 11½ " |
| 13 | 0.10 | 0 " 6 " | 159 " | 0 12½ " |

If wanted in large quantities, 25 per cent. would be deducted from the prices above. There is a great difference in the quality of wire, and those unaccustomed to its use are liable to have an inferior article imposed upon them. It is better that the wire be galvanized or annealed, as the fences will endure from fifteen to twenty years without injury from the weather. For galvanizing the wire, or coating it with tin, the cost will be only 2½ cents per pound in addition to the usual prices.

## CULTURE OF THE OSAGE ORANGE.

A FARMER, writing for the Louisville Journal, says:

A tolerably rich piece of ground should be chosen for a seed-bed or nursery, which should be well prepared by deep and thorough ploughing and harrowing.

About the middle of April is the most suitable season for planting.

The seed should be placed (not more than two quarts together,) in a vessel of water, in a warm situation. They should soak for thirty-six hours, or longer, if more than a year old. The water should then be turned off, and the seed remain in the vessel for six or eight days, and stirred once or twice each day, to prevent fermentation or heating. They should then be planted in drills about one inch deep, and as thick as peas are usually planted. The rows should be thirty-six inches or three feet apart, to admit of the passage of the cultivator. In covering, it is best to raise a sharp ridge, say one inch high, immediately over the seed. This is done with both hands, drawing the fine earth from each side. This will keep the seed in case of dry weather, or, if wet, prevent the ground from baking over them. The seed should be examined after a week, and, when vegetation commences, the ridge should be brought to a level with a fine rake. This eradicates any young weeds that may have started, leaving the ground clean and mellow.

If the plants are well cultivated through the season, they will average two feet high by fall.

In the fall, the ground for the hedge-row should be ploughed four feet or more wide, and again ploughed in the spring to a depth of one foot, and harrowed. In planting, which should be done in March, or as early as the season will admit, the roots should be shortened to ten or twelve inches, and the tops cut nearly level with the ground. It is best to plant them in two rows, fifteen inches apart, and twelve inches in the rows, putting a plant opposite the middle of the space in each row. The ground should be kept clean and mellow during the season.

In the following spring, the shoots should again be shortened to within ten or twelve inches of the crown of each plant, and the rows cultivated as before. After which, they will require frequent shortening with shears made for the purpose, to give the proper form to the hedge.

Although the Osage Orange may be propagated from the cuttings of the roots, yet they will not be found troublesome by sprouting when broken by the plough.

No soil is better suited to the growth of the Osage Orange hedge, than that of the "Barrens;" and, if properly managed, it will answer the purpose after the fourth year.

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CHANGING THE BEARING YEARS OF APPLE TREES.—Mr. R. Manning, of Salem, Massachusetts, (than whom no better authority need be desired, as he is at once competent and truthful,) states that, by

cutting off *all* the blossoms from a Baldwin apple tree, in the spring of its bearing year, he changed the fruitful year to the following one, and, as a consequence, that the *un*fruitful seasons have become bearing years, and *vice versa.—American Farmer.*

## WESTERN TOWNS.

### PEORIA, ILLINOIS.

The following statistics of this interesting and thriving city, are taken from the Peoria Record, of March 5th, 1849, published by S. D. W. Drown.

As is the case in most interior towns, there is no method of ascertaining the accurate amount of exports or imports at Peoria; but the publisher says, "the exports as far as can be ascertained from the different houses, may be set down at above half a million of dollars," for the year 1848. A part of this goes north, by the canal, and part south by the Illinois river. It would be an interesting fact in the commerce of the west, could we know what portion of the exports of Peoria goes north, and what south; and we trust that this fact will appear in the next annual report of the commerce of that city. The leading articles of export consists of pork, wheat, corn, flour, whisky, lard, &c. It appears that there are nine pork packing establishments, at which 26,572 hogs were prepared for market, besides 1,400 slaughtered and packed by Mr. Thomson, which were fatted at his distillery.

There were 60 steamboats employed in the Illinois trade, as high up the river as Peoria, with an aggregate tonnage of 9,622, carpenter's measure, and 1,166 arrivals of steamboats—an increase of nearly 300 over 1847, besides the arrival of 496 canal boats. The navigation closed on the 11th December, 1848, and opened from Peoria to St. Louis, on the 8th of March, 1849.

Of *manufactures and the mechanic arts*, the publisher says:

"The steam flouring mills, distilleries, and pork packing establishment, give employment to 11 coopers' shops, employing in all about 60 hands.

"Mr. Thompson, at his distillery, pays out for materials and labor, about $4,000 annually. The past season he consumed 60,000 bushels of corn, rye and barley, 40,000 bushels of coal, fatted 1,400 hogs, made 4,700 barrels whisky, employing twelve hands in the distillery, ten hands at coopering, and at six at digging and hauling coal.—expending about $500 per week. Whisky principally sold at St. Louis and Chicago.

"A. S. W. Goodwin's candle, lard oil and soap factory, has not quite come up to last year's business, for the reason of meeting with

some opposition by individuals complaining to the city authorities, declaring his establishment detrimental to the health of the citizens. He has, however, presented the following statement: Manufactured into candles 33,898 lbs of tallow, into lard oil 96,480 lbs of lard, making 4,020 gallons of oil. Also, slaughtered this winter for farmers from the country, 2,286 hogs; rendered 464 barrels lard, and 112 barrels steam lard. He usually manufactures about 40,000 pounds of soap in the spring.

"The past season there was added to our manufacturing establishments a white marble grave stone manufactory, by Messrs. Kent, Jewell & Co., in which are employed fifteen hands, at an expense of about $100 per week. The freight alone on the marble slabs from the quarry in Dorsett, Vt., via. the lakes and canal, was $1,265. Some as beautiful work is done at this establishment, as can be found any where in the eastern States.

"Wagon makers, (we have seven establishments,) are extensively engaged, and especially at this time, fitting out our "Pioneer" and "California" companies of gold diggers, and this naturally gives good employment to our blacksmiths, of which there are fifty or more. Also, there are a number of cabinet, bedstead and chair factories, pretty extensively patronized; the bedsteads disposed of the present season, amounted to about 925, principally from the shops of Messrs. Kearns & Bryner, and Fridley & Lincoln.

"There are a greater number of mechanical arts carried on in this, than there are in many other cities of the west, such as founderies, wood and iron turning, (we have two or three such,) where all kinds of iron turning is done for horse or steam power machinery. An additional factory of wind or fan mills, in which seven hands are employed, has been started within a few months. There has been manufactured the past season, at the two old establishments, 375 mills, distributed in the surrounding country, and still the call is for more. They calculate treble that number the coming season will be made.

"The plough factories are still extensively patronized. Messrs. Toby & Anderson employ sixteen hands in their establishment, and have turned out for home and foreign markets, 1,600 ploughs. Peter Sweat & Co. employ nine hands, and have turned out 900 ploughs the past season."

There were erected, in 1848, 72 frame and 53 brick buildings, besides two churches. The whole number of stores and dwellings in the city, is 825. There are nine churches, one Methodist Episcopal, one Old School Presbyterian, one Baptist, one Congregational, one Protestant Episcopal, one New Jerusalem, one Universalist, one Roman Catholic, and one German Lutheran. There is also a society of Campbellites, or Disciples, and perhaps one or two other societies.

The population on the 1st of March, was 5,061, and by the following table it appears that the number has more than doubled in five years and two months:

The following table will show the population of the city from 1844 to the present time, with the increase in each year:

| Years. | Under 20. | Over 20. | Total. | Increase in each. |
|---|---|---|---|---|
| January 1, 1844, | 805 | 814 | 1619 | 000 |
| " 1845, | 972 | 962 | 1934 | 315 |
| " 1846, | 1136 | 1256 | 2392 | 458 |
| " 1847, | 1522 | 1492 | 3014 | 622 |
| " 1848, | 2327 | 1752 | 4079 | 1035 |
| " 1849, | 2622 | 2439 | 5061 | 979 |
| | | | Increase in population for 5 years, | 3409 |

Perhaps the most interesting feature in the statistics of Peoria, is the table showing the place of birth of the heads of families, and the unmarried men of age to vote. These are valuable facts, and will be quite as interesting many centuries hence as they are at present; and we should be pleased if not only all the western towns, but the States likewise, would make it the duty of those who take the census, to ascertain the place of birth of all their citizens.

There are in Peoria 1,261 heads of families and men unmarried; these come from 36 States and Kingdoms—about one-third are foreigners—218 of the number were born in New York; 163 in Germany; 161 in Pennsylvania; 114 in Ohio; 93 in Ireland; 73 in Massachusetts; 68 in Virginia; 67 in England; 38 in Kentucky; 34 in Connecticut; 33 in Maryland, and so on through almost every State in the Union and every nation in Europe; only seven of the whole number being natives of Illinois.

## WESTON, PLATTE CITY AND PARKVILLE, PLATTE COUNTY, MO.

We are indebted to the enterprising and public spirited editor of the Frontier Journal, published at Weston, Missouri, for the following account of Platte County and its Towns.

It is refreshing to find in a western newspaper something else than politics, and the disgusting accounts of moral delinquency which seem to be so eagerly sought after by newspaper publishers throughout the land. Many of these accounts which are copied perhaps in more than a hundred newspapers, relate to subjects that no parent who has the least sense of propriety or delicacy, could permit to be discussed or mentioned in his family; and yet they pay for a newspaper that caters for appetites that would degrade the inmates of the calaboose. Let parents reflect upon this. It is in their power to correct this scandal upon the moral taste of the community if they will; for if a few would withdraw their patronage and assign this as the reason, such publications would soon cease to appear in the public journals. This rebuke may appear out of place, but in publishing the statistics of Weston and other towns in Platte county, we deem it our duty to

notice the Frontier Journal, and to recommend it to the patronage of all who wish information respecting the resources of that which may be considered the most interesting portion of the Valley of the Mississippi.

Platte county constitutes the southern portion of what is known as the Platte country. The Platte country derives its name from the Platte river, by which it is traversed from north to south. It was added to the State of Missouri by an amendment of the constitution, ratified by the General Assembly at its session in the winter of 1834–'35, and subsequently assented to by Congress.

Upon the extinguishment of the Indian title, Platte county was speedily overrun by settlers from all parts of the United States. Without the color of title to their lands, but each claiming as much as they saw proper, it is not strange that the most unamiable relations existed among the inhabitants.

The pre-emption acts of 1838, 1840 and 1841, granted inchoate titles to a large proportion of the settlers, but it was not until the spring of 1843, that, by the establishment of the land office at Plattsburgh, the pre-emptioners were able to perfect their titles by entry. In the course of eighteen months nearly all the lands of the county were entered. The payment of nearly $300,000 by the citizens of the county, who were already in an impoverished condition, caused the most distressing pecuniary embarrassment. The price of every commodity was reduced fully one half. It required several years to revive from this depression; but the day of prosperity has come at last, and Platte is now the second county in the State in point of population, wealth and commercial importance.

Weston, situated on the Missouri river, with a population, according to the late census, of 1,309, is the most important commercial town in the county. There is, perhaps, more produce shipped from Weston, than from any other port on the Missouri river. It is surrounded by one of the finest bodies of land in the world, and by as industrious, intelligent, and thriving a population of farmers as the west affords. Its business, formerly largely wholesale, is now almost exclusively retail. Its prosperity is, therefore, the more substantial. No commercial vicissitude can deprive it of its trade; but, as the wealth of the county grows, the business of the place must increase. About $200,000 worth of merchandise is annually sold in Weston. Two extensive packing houses are busily employed during the packing season.

From this port, as will presently appear, the produce of the county is principally shipped.

Platte City, the seat of justice of the county, is situated at the falls of Platte river. The court house is a spacious building, erected at the cost of $13,485. The lattice bridge across the Platte river, with a single span of 160 feet, and double track, was built at the cost of $13,464. The Platte river is here precipitated twelve or fifteen feet over a ledge of rock, affording abundant water power. A superior flouring mill has lately been erected, and next season a large quantity of flour will be sent to the St. Louis market.

Parkville is situated on the Missouri river, at the mouth of the Platte. It is now a small village, but is fast improving and growing into importance. Its situation commands the shipping business for nearly one-half the county of Platte, as well as parts of Clay and Clinton. New Market and Ridgley are small interior towns.

The following table will exhibit the shipments of produce from the county during the year 1848, distinguishing the amounts shipped from Weston and Parkville respectively.

| | From Weston. | Parkville. | Other points. | Total. |
|---|---|---|---|---|
| Hemp, tons, | 1,577 | 280 | 55 | 1,912 |
| Wheat, bushels, | 23,953 | 6,574 | 1,643 | 32,170 |
| Bacon, casks, | 1,070 | 68 | 60 | 1,198 |
| Pork, barrels, | 828 | 00 | 00 | 828 |
| Lard, barrels, | 1,602 | 92 | 40 | 1,734 |
| Lard, kegs, | 83 | 34 | 00 | 117 |
| Tobacco, hhds., | 121 | 28 | 00 | 149 |
| Peltries, | 1,840 | 80 | 00 | 1,920 |
| Hides, | 943 | 106 | 50 | 1,099 |
| Beeswax, sacks, | 26 | 6 | 00 | 32 |
| Castor Beans, sacks, | 59 | 12 | 00 | 71 |
| Tallow, barrels, | 10 | 00 | 00 | 10 |
| Flaxseed, sacks, | 20 | 3 | 00 | 23 |

In the above table are not included the corn, oats and beef furnished Fort Leavenworth, the oxen, mules and horses sold to government and Santa Fe traders, the produce of all kinds sold to indians, the beeves that have been driven eastward in quest of a market, &c. All included, we may set down the home value of the produce of Platte county, exported in 1848, at $500,000. Next season the shipments of produce of the county will doubtless be increased. Flour will become an article of export, shipments of wheat will probably reach 50,000 bushels, and the hemp crop is estimated at 2,200 tons.

## COMMERCIAL STATISTICS.

### COINAGE OF THE UNITED STATES MINT IN 1848.

In the last number of the Western Journal, we published a complete statement of the annual coinage of the United States, from 1792 to 1847, inclusive. The following table, which we take from the Merchants' Magazine, is abridged from the annual report of R. M. Patterson, Esq., Director of the Mint, recently communicated to Congress:

| | |
|---|---|
| At Philadelphia, in gold, - - - | $2,780,930 |
| " in silver, - - - | 420,050 |
| " in copper, - - - | 64,158 |
| Total, - - - - | $3,265,138 |

[Number of pieces coined, 8,691,444.]

The deposits for coinage amounted to, in gold, $2,584,460; in silver, $466,732.

| | |
|---|---|
| At New Orleans, in gold, - - - - | $358,500 |
| " " in silver, - - - - | 1,620,000 |
| Total, - - - - | $1,978,500 |

[Number of pieces coined, 3,815,850.]

The deposits for coinage amounted to, in gold, $183,360; in silver, $1,659,774.

At Charlotte, North Carolina, the amount received during the year for coinage, in gold, was $370,799. The coinage amounted to $364,330—composed of half eagles, 64,472, quarter eagles, 16,788.

At Dahlonega, Georgia, the amount received during the year for coinage, in gold, was $274,473; amount coined, $271,752½—composed in number of, half eagles, 47,465, quarter eagles, 13,771.

The deposits at the four mints during the year, amounted in all, to $5,539,598.

| | |
|---|---|
| In gold, - - - - - - | $3,413,092 |
| In silver, - - - - - - | 2,126,506 |
| The coinage amounted to— | |
| In gold, - - - - - - | $3,775,512½ |
| In silver, - - - - - - | 2,040,050 |
| In copper, - - - - - | 64,158 |
| Total, - - - - | $5,879,720½ |

## PRICES OF BAR IRON IN LIVERPOOL FROM 1817 TO 1849.

The following statement of the *selling* price of merchant bar iron in Liverpool, has been prepared with very great care, and shows some of the most remarkable facts in the history of trade.

On the introduction of railways into general use, railway bars, at first, commanded a price varying from £1 10s. to £2 per ton. During a few past years, ordinary rails have been furnished at a shade only below the quotation price of merchant bar.

| | PER TON. | | PER TON. |
|---|---|---|---|
| 1817—February, | £8 10 | 1818—February, | 12 15 |
| March, | 9 10 | April, | 11 15 |
| July, | 10 10 | May, | 11 5 |
| August, | 12 00 | June, | 10 15 |
| October, | 13 00 | August, | 10 00 |

| | | PER TON. |
|---|---|---|
| | September, | 11 10 |
| | December, | 12 10 |
| 1819— | May, | 11 10 |
| | June, | 11 00 |
| 1820— | March, | 10 10 |
| | June, | 9 10 |
| 1821— | " | 9 00 |
| 1822— | " | 8 10 |
| 1823— | " | 8 00 |
| 1824— | January, | 8 15 |
| | July, | 9 15 |
| | September, | 10 00 |
| | October, | 11 00 |
| | " | 13 10 |
| | " | 10 00 |
| | November, | 12 10 |
| | December, | 13 00 |
| 1825— | January, | 14 00 |
| | February, | 15 00 |
| | March, | 14 10 |
| | April, | 14 00 |
| | August, | 13 00 |
| | " | 12 10 |
| | September, | 11 10 |
| 1826— | January, | 11 00 |
| | April, | 10 10 |
| | May, | 9 10 |
| | October, | 10 00 |
| 1827— | March, | 9 10 |
| 1828— | " | 8 00 |
| 1829— | " | 7 00 |
| 1830— | " | 6 00 |
| 1831— | " | 6 00 |
| 1832— | " | 5 10 |
| 1835— | February, | 6 5 |
| | September, | 7 00 |
| | October, | 7 10 |
| | November, | 8 00 |
| | December, | 8 5 |
| 1836— | January | 10 10 |
| | April, | 11 10 |
| | July, | 11 5 |
| | October, | 11 00 |
| | November, | 10 15 |
| | December, | 10 10 |
| 1837— | February, | 10 5 |
| | March, | 9 15 |
| | May, | 9 00 |
| | June, | 8 10 |
| | July, | 7 5 |
| | August, | 6 15 |
| | " 15, | 7 5 |
| | " 19, | 8 00 |
| | " 31, | 8 15 |
| | September, | 9 10 |
| | December, | 9 12 |
| 1838— | January, | 9 10 |
| | December, | 9 15 |
| 1839— | January, | 10 5 |
| | May, | 10 00 |
| | June, | 9 15 |
| | September, | 9 10 |
| 1840— | January, | 9 00 |
| | December, | 8 00 |
| 1841— | April, | 7 15 |
| 1842— | January, | 6 10 |
| | December, | 5 5 |
| 1843— | April, | 5 00 |
| | June, | 4 10 |
| 1844— | January, | 4 15 |
| | March, | 4 15 |
| | April, | 5 5 |
| | August, | 5 15 |
| | October, | 5 15 |
| | December, | 5 15 |
| 1845— | February, | 8 00 |
| | March, | 10 10 |
| | April, | 9 10 |
| | May, | 9 10 |
| | July, | 8 10 |
| 1846— | April, | 9 00 |
| | August, | 9 00 |
| | November, | 11 00 |
| 1847— | January, | 10 10 |
| | April, | 9 10 |
| | July, | 9 15 |
| | August, | 9 8 |
| | December, | 8 5 |
| 1848— | January 4, | 8 00 |
| | " 28, | 7 00 |
| | February 25, | 7 15 |
| | March, | 7 00 |
| | April, | 6 15 |
| | May, | 6 5 |
| | June, | 6 00 |
| | October, | 5 10 |
| | November, | 5 5 |
| | December, | 4 15 |
| 1849— | January 15, | 5 5 |

Barring Brothers say, in their circular of 23d February, 1849: Iron continues in good demand, and the makers are firm at £8 per ton for common bar, and £5 15s. @ £6 for rails, free on board in Wales. In Staffordshire, prices have advanced 10s. per ton. Scotch Pig, on the Clyde, has been dealt in largely, from 22s. to 23s. per ton for mixed numbers; and Gartsherrie is held at 55s.

## IMPORTS OF IRON UNDER THE TARIFFS OF 1842 AND 1846.

The Secretary of the Treasury, according to instructions, sent to the House of Representatives a return, showing the different kinds and value of articles of iron imported, and duties received, since the enactment of the tariff of 1842, of which the following is a summary:

*Statement showing the value of iron, and manufactures of iron and steel imported under the tariffs of* 1842 *and* 1846, *and the gross amount of duties received thereon.*

| From— | Value of art's paying ad val. duties. | Val. of art's paying specific duties. | Total imports. | Gross amount of duties received. |
|---|---|---|---|---|
| 1st Oct. '42, to June 30, '43, | $734,737 | $1,161,121 | $1,903,858 | $902,054 84 |
| For year ending June 30, '44, | 2,782,137 | 2,445,365 | 5,227,502 | 2,477,342 35 |
| " " " " '45, | 4,169,745 | 4,125,121 | 8,294,866 | 3,672,141 66 |
| " " " " '46, | 4,069,829 | 3,750,590 | 7,820,428 | 2,868,787 65 |
| July 1, '46, to Nov. 30, '46, | 1,796,428 | 1,315,397 | 3,111,825 | 1,050,579 56 |
| Total, | 13,552,876 | 12,805,603 | 26,358,479 | 10,970,906 00 |

UNDER THE TARIFF OF 1846.

| | Val. of art's pay'g ad val. duties. | Total imports. | Gross amount of duties received. |
|---|---|---|---|
| From Dec. 1, 1846, to June 30, '47, | $5,669,427 | $5,669,427 | $1,690,511 40 |
| For the year ending June, 1848, | 12,526,854 | 12,726,854 | 3,736,223 20 |
| Total, | $18,196,281 | $18,196,281 | $5,426,734 60 |

## IMPORTS OF COAL INTO THE UNITED STATES,

UNDER THE TARIFFS OF 1842 AND 1846.

The following is a statement exhibiting the quantity and value of coal imported under the tariffs of 1842 and 1846, together with the amount of duty which accrued on the same, prepared in obedience to a resolution of the House of Representatives, of the 14th December, 1848:

| | Tons. | Value. | Rate of duty per ton. | Duties. |
|---|---|---|---|---|
| From Oct. 1, 1842, to June 30, '43, | 41,163 | $116,312 | $1 75 | $72,035 25 |
| Year ending June 30, 1844, | 87,073 | 236,963 | 1 75 | 152,377 75 |
| " " " 1845, | 85,776 | 223,919 | 1 75 | 150,108 00 |
| " " " 1846, | 156,853 | 378,597 | 1 75 | 274,492 75 |
| From July 1, to Nov. 30, 1846, | 66,272 | 157,636 | 1 75 | 114,226 00 |
| Dec. 1, 1846, to June 30, 1847, | 82,749 | 213,349 | 30 per ct. | 64,004 70 |
| July 1, 1847, to June 30, 1848, | 196,251 | 461,140 | " | 138,342 00 |

*Note.*—The tariff of 1842 commenced operating August 30, 1842, and the tariff of 1846, December 1, 1846.

The following table, exhibiting the amount of imports and exports from 1821 to 1848, is taken from the report of the Secretary of the Treasury. It will be perceived, from this report, that the excess of imports, exclusive of specie, during the fiscal year ending the 30th June, amounted to $16,787,361. This excess, less the balance against this country, of $945,745, was made up by the export of specie. We have no means of ascertaining how the account stands for the current year. But the amount of duties received for the first quarter, ending on the 30th September, was $8,991,935 07; more than the quarterly average of the preceding year.

There is little doubt that the exports of the current year will fall short of the last; and it is evident that, unless our importing merchants are governed by a prudent forecast, a severe revulsion must ensue.

The article under the title of "Commercial Chronicle and Review," in the Merchants' Magazine, for March, 1849, holds out a most flattering prospect for the business of the present season. Speaking of England, the writer says: "American produce is again selling freely, at higher prices, and every element of prosperity is in action."

The accounts of the English market, which have reached us during the current year, are certainly the reverse of this. The elements of prosperity may be in action in England, but we cannot believe that this prosperity will increase the price or demand for American grain or flour.

It is not our intention to write a review of this article at present. But, the least we can say of it is, that, in our opinion, the writer proceeds upon assumptions that are fallacious, and that his views are calculated to mislead those who may be governed by them.

*Statement of the total imports, and the imports consumed in the United States, exclusive of specie, during each fiscal year, from 1821 to 1848; showing, also, the domestic and foreign exports, exclusive of specie, and the tonnage employed during the same periods.*

| Years. | Total imports. | Imports consumed in the United States, exclusive of specie. | Domestic produce exported, exclusive of specie. | Foreign merchandise exported, exclusive of specie. | Total exports. | Tonnage. |
|---|---|---|---|---|---|---|
| 1821 (to Sept. 30,) | $62585724 | $43696405 | $43671894 | $10824429 | $64974382 | 1298958 |
| 1822 do. | 83241541 | 66305673 | 49874079 | 11476022 | 72160281 | 1324699 |
| 1823 do. | 77579267 | 51310736 | 47155408 | 21170635 | 74699030 | 1336566 |
| 1824 do. | 80549097 | 53846567 | 50649500 | 18322605 | 75986657 | 1389163 |
| 1825 do. | 96340075 | 66295722 | 66944745 | 23793588 | 99535388 | 1423112 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1826 | do. | 84974477 | 57652577 | 52449855 | 20440934 | 77595323 | 1534191 |
| 1827 | do. | 79484063 | 549011 8 | 57878817 | 16431830 | 82324827 | 1620608 |
| 1828 | do. | 885 9824 | 68975505 | 49976683 | 14044578 | 72264686 | 1741392 |
| 1829 | do. | 74492527 | 54741571 | 55087307 | 12347344 | 72358671 | 1260798 |
| 1830 | do. | 70876920 | 49575099 | 58524878 | 13145857 | 73849508 | 1191776 |
| 1831 | do. | 103191124 | 82808110 | 59218583 | 13077069 | 81310583 | 1267847 |
| 1832 | do. | 101029266 | 75327688 | 61726529 | 19794074 | 87176943 | 1439450 |
| 1833 | do. | 108118311 | 83470067 | 69950856 | 17577876 | 90140433 | 1606151 |
| 1834 | do. | 126521332 | 86973147 | 80623662 | 21636553 | 104336973 | 1758907 |
| 1835 | do. | 149895742 | 122007974 | 100459481 | 14756321 | 121693577 | 1824940 |
| 1836 | do. | 189980035 | 158811392 | 106570942 | 17767762 | 128663040 | 1882103 |
| 1837 | do. | 140989217 | 113310571 | 94250895 | 17162232 | 117419376 | 1896656 |
| 1838 | do. | 113717404 | 86552598 | 9556 88 | 9417690 | 108486616 | 1995640 |
| 1839 | do. | 162092132 | 145870816 | 101625533 | 10626140 | 121028416 | 2096479 |
| 1840 | do. | 107141519 | 86250335 | 111660561 | 12008371 | 132 85946 | 2180764 |
| 1841 | do. | 127946177 | 114776309 | 1 3636236 | 8181235 | 1218518 3 | 2130744 |
| 1842 | do. | 100162087 | 87996318 | 91799242 | 8078753 | 104691534 | 2092391 |
| 1842 (to December 31— 3 months, | | 21584599 | 12431376 | 25895451 | 1713112 | 28125493 | 2174862 |
| 1843 (January 1 to June 30—6 months,) | | 43169200 | 24862753 | 5179093 | 3426223 | 56230987 | 2158603 |
| 1844 (from July 1, 1843, to June 30, 1844,) | | 108435135 | 96390548 | 99531774 | 6214058 | 111200046 | 2280095 |
| 1845 (to June 30,) | | 117254564 | 105599541 | 98455330 | 7581781 | 114646606 | 2417002 |
| 1846 | do. | 121691797 | 110048859 | 101718042 | 7865206 | 113488516 | 2562085 |
| 1847 | do. | 146515638 | 116258310 | 150574844 | 6166 39 | 158648622 | 2839046 |
| 1848 | do. | 154977876 | 127490012 | 130203709 | 7988806 | 154032131 | 3150502 |

DANIEL GRAHAM, Register.

TREASURY DEPARTMENT, Register's Office, Dec. 4, 1848.

## ILLINOIS AND MICHIGAN CANAL.

THE President of the Board of Trustees, has addressed a circular letter to the stockholders, containing an interesting and highly satisfactory exhibit of the affairs af the Company.

The Chief Engineer states in his report for the present year, that all the work upon the main line of Canal is fully completed, according to the original intention of the Board, except three inconsiderable items, the whole cost of which is stated at $3,000. The cost of completing the Canal and feeder was $1,401,192 79, leaving in the hands of the trustees of the loan of $1,600,000, advanced by the stockholders to supply the deficiency of means on the part of the State to complete the Canal, the sum of 198,808. The Canal was opened for navigation in the latter part of April, 1848, and the first boat which passed through the whole extent of the line arrived at Chicago on the 23d April. The number of boats on the Canal registered and licensed previous to the 1st June, 1848, was 15 only. The whole number registered at the close of the season was 162. The principal articles transported upon the Canal, in 1848, were flour, pork, salt, fish, sugar, molasses, wheat, corn, oats, merchandise, coal, potatoes, lumber, &c. The gross income for that year was, $87,890, or $878 per mile. The Canal was closed by ice on the night of the 29th November, making, from the opening of navigation, a period of 224 days. The Canal revenue from tolls is estimated for 1849, at $120,000. The whole amount of resources for 1849 is estimated at $470,382,77; of probable expenses at $80,000; leaving upwards of $400,000, a large portion of which can be applied to the payment of the interest and to the reduction of the principal loan of $1,600,000.—[*Republican.*

## MISCELLANEOUS.

### RAILWAYS, NUMBER OF MILES, AND COST OF CONSTRUCTION IN DIFFERENT COUNTRIES.

The American Railroad Journal, of February 24th, contains some valuable and interesting statistics upon the subject of railroads, showing their present condition throughout the world. The following table is more fully accurate than any before published on the subject:

| | MILES. | COST PER MILE. | TOTAL. |
|---|---|---|---|
| United States, | 6,421 | $30,000 | $192,630,000 |
| Canada, | 54 | 30,000 | 1,620,000 |
| Cuba, | 250 | 28,000 | 7,000,000 |
| Total in America, | 6,725 | | $200,250,009 |
| Great Britain, | 4,420 | 145,000 | 640,900,000 |
| France, | 1,250 | 110,000 | 137,500,000 |
| Germany, | 3,370 | 50,000 | 168,500,000 |
| Belgium, | 495½ | 80,900 | 39,640,000 |
| Holland, | 162½ | 25,000 | 4,062,500 |
| Denmark and Holstein, | 282 | 40,000 | 11,280,000 |
| Switzerland, | 78 | 50,000 | 3,600,000 |
| Italy, | 162½ | 90,000 | 14,625,000 |
| Russia, | 113 | 60,000 | 6,780,000 |
| Poland, | 187½ | 50,000 | 9,375,000 |
| Hungary, | 157 | 50,000 | 7,850,000 |
| Total in Europe, | 10,678 | | $1,044,402,500 |
| Grand Total, | 17,403 | | $1,244,652,500 |

The above gives the number of miles of railroad *in operation* at the commencement of the present year—the cost per mile of their construction, and the aggregate expenditure. Within the last twenty years these seventeen thousand four hundred and three miles of railroad have been built at an expense of twelve hundred and forty-four millions six hundred fifty-two thousand five hundred dollars. And it is asserted, that the roads now in progress, including those which will be completed within the next five years, will represent an additional amount of capital equal to the sums already expended upon those that are finished.

It will be noted that the above table only comprises roads finished and in operation, while in Europe and America, thousands of miles are in progress of completion, and thousands of additional miles are contemplated and boing projected.

For instance, at the close of the year 1847, the railways built and in progress in England, Wales, Scotland and Ireland, amounted to twelve thousand four hundred and eighty-one miles, contemplating a capital of $1,567,887,000; and the whole amount actually expended on railways, to the end of September, 1848, was $837,222,000.

And in France, at the close of the year 1846, the number of miles of railway in progress and completed, was three thousand eight hundred and forty-one, requiring a capital of $416,000,000.

In Russia, also, at the end of the year 1847 there were sixteen hundred miles of railway in progress, and are being rapidly built by government, although only one hundred and thirteen miles are in operation, as stated in the above table.

And in the United States, six thousand four hundred and twenty-one miles are in operation, while the number of miles of railway in progress of completion, are comparatively greater than in the European countries above mentioned.

The number of miles of railway in actual operation in the several States of the Union, will appear from the following table:

Maine 111¾ miles; New Hampshire 263½; Vermont 91½; Massachusetts 876¾; Rhode Island 64½; Connecticut 270½. Total in New England, 1678 miles.

New York 1019 miles; New Jersey 239½; Pennsylvania 720½; Delaware 40; Maryland 252; Virginia 406; North Carolina 255; S. Carolina 204; Georgia 602; Florida 26; Alabama 111; Mississippi 95; Louisiana 50½; Kentucky 28; Illinois 53; Indiana 86; Ohio 294; Michigan 264. Grand Total, 6,421½ miles.

## ELECTRO MAGNETISM AS A MOTIVE POWER.

The following is the report of the Select Committee of the Senate, presented by Mr. Benton on Wednesday week, on the application of Dr. Page for aid in testing his new invention in Electro Magnetism:

Mr. Benton, from the Select Committee of the Senate, to which was referred the memorial of Prof. Page, made the following report:

"That the memorialist represents that he has discovered a mode of applying Electro Magnetic Power for the purpose of navigation and locomotion, and as a general substitute for the dangerous agency of steam; that he has been engaged in the invention of this subject for more than twelve years, at great expense and sacrifice; that he is now able to demonstrate the availability of the electro magnetic power, as a mechanical agent, upon a scale of magnitude commensurate with his limited means; that means larger than his own would be necessary to test the availability of the power in its application to the great purposes of useful navigation and locomotion; that he deems his invention worthy of national encouragement, upon the same principle that encouragement was extended by Congress to Prof. Morse for telegraphing by electro-magnetism; and he prays that a select committee may be appointed to examine his invention, and to witness his experiments, and that an appropriaton may be made to enable him to apply his invention on a large and useful scale.

"In pursuance to their appointment, the committee attended the lectures now in course of delivery in this city by Prof. Page, on electro-magnetism, and witnessed his experiments in the application of that

power as a mechanical agent, and are satisfied that his past success with the limited means justifies the expectation of farther success from enlarged means.

"The power was exhibited, among other ways, in the suspension of a mass of iron of 50 pounds, without visible support, and in the capacity of the great electro magnet to sustain all the weight that can be crowded upon it, consisting of masses of iron and several persons, and believed capable of sustaining weight of 10,000 pounds. Its application was exhibited in the propulsion of miniature engines, and in driving an engine of considerable power by which boards are planed with ease and smoothness.

"That the power is great and can be applied to the useful purposes of navigation and locomotion, the committee see no reason to doubt. The inquiry which rests upon their mind is as to the cost of the production of this power, and whether it can be produced at a rate to justify its common use as a mechanical agent. On this point experience can be the only safe guide, and thus far experience is favorable. Dr. Page informs the committee that he has succeeded in largely reducing the cost of production, and expects to be able to bring it within the limits of an economical power, especialy when the saving of life, as well as of money, shall be comprehended under the idea of economy—safety being one of the greatest objects of his invention.

"Upon the examination of the power and applicability of Professor Page's invention, the committee deem it an object of national interest, that the entire ability be completely tested; and the sum of twenty thousand dolars being deemed necesary by him for that purpose, they recommend an appropriation accordingly, and direct the chairman to propose it as an item in the Naval Appropriation bill." The report was ordered to be printed.

## COMPOSITION ROOFS.

Inquiries have been made of me, respecting the character and value of these roofs, of which a number have been laid since their introduction here in 1846. What I have to say is of general import, and will be best stated in my columns.

The usual covering hitherto, has been shingles, sheet iron, tin, slate and sheet copper. Shingles make a low priced roof, but they are deficient in durability, and are not only easily destroyed by fire, but become a means of facilitating the progress of flames from house to house. Tiles are expensive—so is slate, with the additional difficulty that they are apt to become dangerous in time of fire to those within the reach of the fragments into which they explode under the action of intense heat. Copper is also very expensive. Composition roofs, in their first cost, are not much higher than shingles, and taking durability into view, are much less expensive.

The composition is a preparation of tar and sand upon paper, which is fastened to the sheeting usually prepared as a basis for shingles. Thick and strong paper is first secured to the board, and two or three coats of prepared tar is then spread on the surface. Sand or fine gravel forms the final coat or covering.

Such a roof does not leak even when just made, and a few months serves to render it perfectly dry, and indestructible by fire.

The advantages of these roofs are,

1. Its durability. To this no period can be assigned, save that it will last as long as the house it covers.

2. The beauty it confers upon a roof. The least possible declivity serves for such a roof, as the water cannot penetrate it in the slightest degree. This is a feature which every one can see and must appreciate.

3. Its efficacy. Such a roof becomes so substantial that rain cannot in the slightest degree penetrate it.

4. Its indestructibility by fire, which has often been tested, and always with success.

5. Not least in the advantages, is the perfect foothold it affords in the surface, as well as in the slope. These roofs can be walked over in absolute safety, except when covered with sleet.

Mann & Co., whose office is in the same building with mine, put on these kind of roofs in a workmanlike manner, which has given every satisfaction to their employers. I will only add that their composition roofs are now superceding all other kinds upon the business buildings of Cincinnati.—*Cist's Advertiser.*

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## LAWS OF NEWSPAPERS.

1. Subscribers, who do not give express notice to the contrary, are considered as wishing to continue their subscription.

2. If subscribers order the discontinuance of their papers, the publisher may continue to send them till all arrearages are paid.

3. If subscribers neglect or refuse to take their papers from the offices where they are directed, they are held responsible till they have settled their bill, or ordered their paper to be discontinued.

4. If subscribers remove to other places, without informing the publisher, and the paper is sent to the former direction, they are held responsible.

5. The courts have decided, that refusing to take a paper or periodical from the office, or removing and leaving it uncalled for, is "prima facie" evidence of intentional fraud.

JOHN D. M'MURRAY. JAMES M. DORMAN.

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